ORBIT 8

Volume 2, Number 3, June 1971

A Publication of the Ontario Institute
for Studies in Education

Ideas about Teaching and Learning

Flexidisc

Side 1 – Writers
The excerpts of the interviews with the two authors – Dorothy Livesay and Hugh Garner – were taken from OISE's 'Canadian Poets on Tape' and 'Canadian Writers on Tape' series.

Dorothy Livesay has been a social worker, reporter, teacher in Northern Rhodesia, and writer-in-residence. She now teaches English at the University of Alberta. An important Canadian voice since her first publication in the late twenties, her most recent books are *The Unquiet Bed, The Documentaries,* and *Plainsongs.* She has been awarded the Lorne Pierce Medal and the Governor-General's Award.

Hugh Garner's best-known novel is *Cabbagetown.* The jacket of this book outlines his varied career: 'Since dropping out of Grade 10 at sixteen, Hugh Garner has been a harvest hand, hobo, maker of cemetery flower-pot holders, housing inspector, grocery store manager, daily newspaper columnist, and public relations director. He has also been a soldier in the Spanish Civil War, RCN chief petty officer in World War II, television dramatist and panelist, and, during the fifties, Canada's most prolific freelance magazine journalist.'

Side 2 – Scientists
The four scientists are all winners of the Nobel Prize.

Harold C. Urey discovered heavy hydrogen (deuterium) in 1931 by distilling hydrogen near the triple point and examining the spectra of the residue in which the heavy hydrogen was concentrated.

Patrick M. S. Blackett worked in the Cavendish Laboratory at Cambridge from 1921 to 1931. He adapted the Wilson cloud chamber to the study of cosmic radiations, a technique that led to the discovery of several subatomic particles.

Archer J. P. Martin first achieved prominence through his invention of the technique of partition chromatography; this technique, of which gas chromatography is an extension, permits the quantitative separation of various substances. On the flexidisc, Dr. Martin describes his present research interests.

Dorothy Hodgkin in 1964 became the third woman ever to win a Nobel Prize in science, Mme Curie and her daughter Irene were the first two. She was awarded the prize for her determination by X-ray techniques of the structure of important biochemical substances – in particular, penicillin and Vitamin B_{12}.

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Editor: Hugh Oliver
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Cover: Adapted from a photograph by

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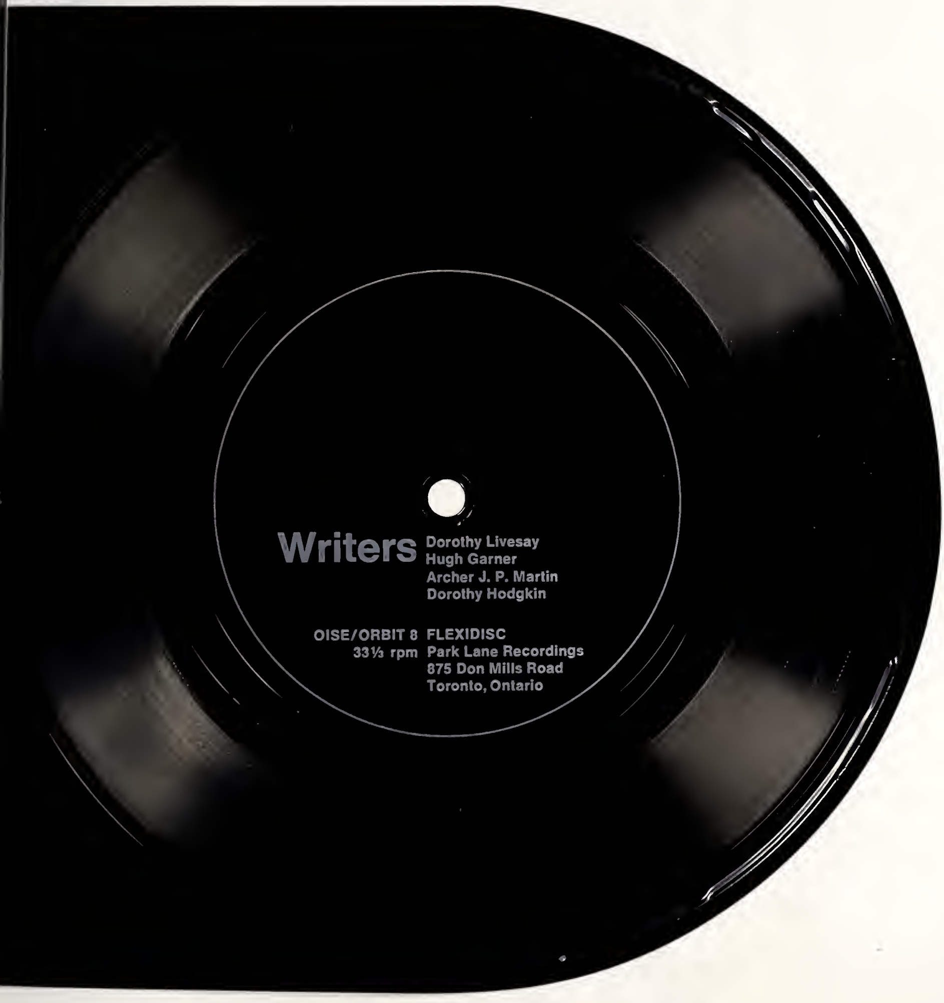
Audience: *Orbit* is published by the Ontario Institute for Studies in Education for everybody involved in or concerned with education.
Content: *Orbit* features information about educational research and development and, in addition to discussing work carried out by OISE and schools across Ontario, draws on material from other Canadian provinces and other countries. Les articles qui intéressent surtout les francophones paraissent en français.

Contributions: We should be glad to receive from readers articles about educational practice, criticisms of past issues of *Orbit,* and suggestions for future issues. Before submitting full-length articles, for which an honorarium will normally be paid, a preliminary letter should be sent to the editor.

Subscriptions: $3.00 per volume (5 issues). Not published in August. Available only to subscribers; no individual copies for sale. Subscriptions should be addressed to Publications Sales, OISE, 252 Bloor Street West, Toronto 5, Ontario.
Please enclose a check or money order payable to the Ontario Institute for Studies in Education.



Writers

Dorothy Livesay
Hugh Garner
Archer J. P. Martin
Dorothy Hodgkin

OISE/ORBIT 8
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Park Lane Recordings
875 Don Mills Road
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Barker Fairley, Professor Emeritus of German Literature at the University of Toronto, and a scholar and artist of international renown, is interviewed by Johan Aitken. Mrs. Aitken, who is a professor in the English Department at the University of Toronto's College of Education, is an author of *Wavelengths,* a new language series for junior high school being published by J. M. Dent & Sons (Canada) Limited. She includes a poem by Barker Fairley and a brief survey of his artistic accomplishments in *Wavelengths 32.*

'I would penalize a teacher who was caught teaching a subject he wasn't enthusiastic about.'

Aitken: 'Everything you do hangs together' was a comment Michael Langham made about you. Since I entirely agree with his observation, I shall not limit this interview to art or German but shall ask you about several of your diverse interests and activities.

I cannot imagine a world without scholars of Latin and Greek, yet our educational system seems determined to cut us off from these essentials of our heritage. Secondary schools offer so many dazzling alternatives to these eminently difficult but infinitely rewarding studies that it takes a tough-minded student indeed to swim against the present anticlassical tide.

Now the pinch is being felt in the German departments. Certainly the teachers of German are not rejoicing at the prospect of obsolescence, but I believe that more seriously, and if you like more altruistically, they are deeply concerned about the future of German scholarship in Canada. Would you comment?

Fairley: I have the strong impression that the whole curriculum is being revised and changed – forcibly changed. I don't think that it is necessary for German to go on being anything in the nature of a compulsory subject. I don't think it ever really was. I think it is desirable, certainly, that students in high schools should learn a foreign language, and a foreign literature. Now whether that should be German, or French, or Russian, or Spanish, I don't know. In the past, it was convenient to have French and German as the chief modern ones, but you can't insist on that. There are others with equal claims. I don't know what the future has in store.

Aitken: My own feeling is that learning one language other than one's own is necessary – not for political reasons, but in order to have another vision of the world.

Fairley: Yes. Goethe said, 'Whoever knows nothing of foreign languages knows nothing of his own.' You begin to know the quality and special character of your own language when you know something of at least one other.

Aitken: Goethe's reason, then, should inspire us to learn another language. But need it always be French?

Fairley: Well, you can't say that French is any richer than German. It's different. But you have to remember that Canada is a bilingual country, and we've got to encourage French on account of our political configuration. We can't in any way oppose the teaching, or priority, or preponderance of French. We have to accept it. If there is a further language done, it mustn't be at the expense of French. Therefore the other languages and literatures are likely to be at a bit of a disadvantage in the future.

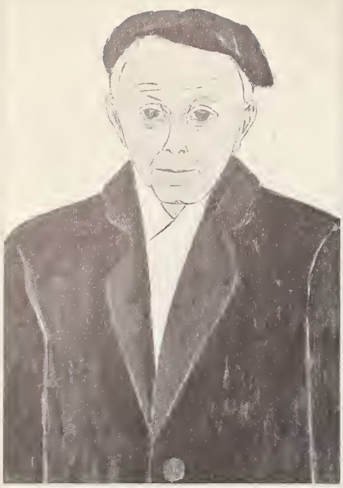
Aitken: You must be one of the most charitable professors of German! What features of your own background do you think might be responsible for your equitable stance?

Fairley: I took moderns – that meant I took French and German. There was no alternative then. And when I graduated, I was offered a post in a German university, as a native assistant. That took me to Germany for three years under wonderfully favorable circumstances, and that, of course, took me to German. I wouldn't have gone into German necessarily if I hadn't had this thing handed to me on a platter. An assistantship at a beautiful university, with a small salary and very little work – an opportunity to study.

Aitken: Maybe there is a parallel here. Maybe if students had German offered to them in as interesting and palatable a way, they might be smitten with it just as you were.

Fairley: They might. I think that German at its best is more sympathetic to the English-speaking student than French.

Photographs: Dick Bartrum, OISE



Portrait of Barker Fairley –
painted in 1968 by Vincent Thomas

There is a profound affinity between German and English literature. They have the same poetry, written in similar metres, and so you come closer to German poetry than you can possibly come to French – or Italian or Spanish. That's a very good reason for learning German.

Aitken: In spite of this affinity between German and English, you still would not make German in any way a compulsory subject?

Fairley: I can't say that it should be a requirement. I think it's desirable. I don't know how to give students a taste of other literatures without teaching them some, and yet I don't know whether there is room for German in the curriculum. In my ideal school, there would be the regular courses, and there wouldn't be so much crowding that there couldn't be some short introductory courses which the student could attend voluntarily and so get a taste of other languages. That's how I came to like German. At the school where I went, I was taught French and Latin regularly, but there was a little short course that one of the teachers gave voluntarily on German. That allowed me to enter German at the university and take it. That's what I did and I liked it. And this could happen, I should think, in a well-regulated school.

Aitken: In the high schools, at present, teachers are introducing new courses called 'structural courses' to develop oral fluency and linguistic competence. Speaking German, in what is referred to as an audio-lingual approach, is being stressed, and reading and translation, to which the university gives priority, are receiving less emphasis. Naturally this difference in emphasis increases the cleavage between the secondary school and the university. The gap between school and university seems to be getting wider at a very bad time for German studies in general. Can you see any way to bridge it?

Fairley: The teaching of German in German – I didn't grow up under that system at all, and it's not what I would introduce. I think that I learned French and German very well without that approach. It's only in North America that we have this notion of teaching a foreign language in a foreign tongue. Your native tongue is the one best suited for intellectual intercourse.

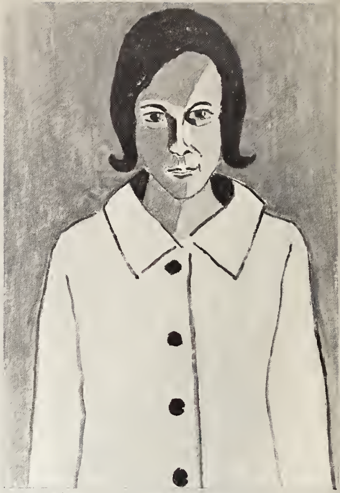
I don't care for the high schools trying to do everything in German. I think it must be a very laborious process on the part of teachers who don't know German any too well themselves. You can learn a lot about a language without being an expert in speaking or writing it. What matters is to give students the feeling for literature in the other language – that's the thing that I care about. I think that if you give them that at school, that's worth all the glibness they might acquire in asking the way to the bathroom. I know a man who knows how to go to the bathroom in thirty languages, and he's proud of it. But it doesn't improve him at all. I'm all in favor of stressing good literature from the beginning, as they always did in the classics. I would give students the best literature quickly without worrying too much about oral practice or about writing in the foreign tongue. I think the way they taught the classics would work equally well in the modern literatures. Now this makes me run against the current trend, but I believe that the people in Latin and Greek knew how to make their subjects attractive. Something that is not too remote from their approach is best in the modern languages too.

Aitken: So you would say, then, in this division between the high schools and the universities, it's the high schools that need to give way.

Fairley: Yes, the schools have overstressed the oral approach to learning, and I think teaching in a foreign tongue puts that subject at a great disadvantage. I never had to do it, and I never would want to.

Aitken: How would you provide, then, for learning to speak another language?

Fairley: It seems to me that speaking the language should somehow be facilitated by visits abroad, which are easier and easier to make. You can learn more oral German in a month in Germany than you can in three years at home. The great thing is to give students a love for something literary in the language – some great poetry. In German, it's very easy to do. I value that much more than an ability to speak.



Johan Aitken – by Barker Fairley

Aitken: Would you recommend exchange programs between Germany and Canada on a large scale?

Fairley: Yes. That will do far more than the teacher trying laboriously to introduce spoken German as a means of communication in an English-speaking country.

Aitken: You've spoken about the study of German literature and observed that trips abroad are the best way to learn to speak German. What provisions would you make for learning to *write* German?

Fairley: I wouldn't stress students writing a lot of German at all. I didn't learn any Latin from writing Latin. I read Virgil. I didn't have to write Latin in order to read Virgil, and you don't need to write German in order to read Goethe's *Faust.*

I remember telling my colleagues years ago that if I had my way I would start German with *Faust*, and they were horrified. I didn't get to first base in my argument, but I still hold by it. One of the things that I would like to say about German literature is that the language becomes easier the higher you go. No language or literature is better suited to introducing foreign literature to students than German because the great German literature can be given to beginners almost in their first lesson.

Aitken: Now, let us move to art. In the past, you have lectured widely and deeply about art in Canada. Recently, when you were 'The Man at the Centre' on the television program by that name, you conveyed some of your convictions about Canadian art in general, and your own art in particular. What do you hope your audience will learn from your appearance as Man at the Centre?

Fairley: That's a hard question. All I can say is that when I was asked the question, I answered quite frankly and unreservedly, in terms of my convictions. I talked about nonobjective painting – quite frankly giving my views, which I've never concealed – and I talked about portrait painting in my own terms, explaining to some extent what I do.

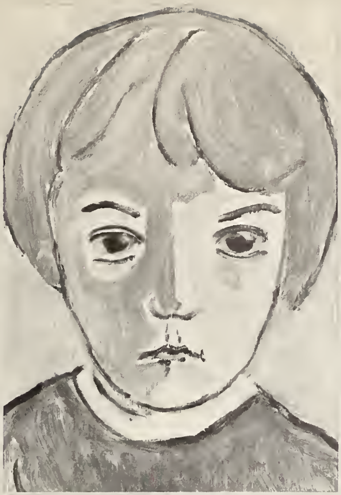
Aitken: Do you think that this television program might encourage people to be more interested in portrait painting?

Fairley: That's precisely what I should wish. As I have argued in more places than one, there's a great lack of enlightened interest in anything except landscape painting. People accept all manner of styles in landscape painting, but most of them don't have an open mind about portrait painting. They look for resemblances, and not for anything in the nature of artistic characterization. I would like my pictures to be looked at by people who didn't know the sitters.

Aitken: In the early fifties you wrote an article called 'Canadian Art: Man *vs* Landscape.' In this article you lament the fact that landscape continues to play so dominant a part and humanity so subordinate a part in Canadian painting. Varley gave us the missing face, and this is one ingredient that you also contributed to Canadian art, but can you explain why Canadian art *is* this way – why the face has been missing from Canadian art for so long? And why we still seem so reluctant to realize that we, as people, are part of the landscape?

Fairley: I really can't tell you why. We've had a strong landscape school and it has really dominated Canadian art. We haven't got any parallel development of figure or portrait painting or of painting of the social scene. Our painting is very limited in its extent, in its range, so far. I've asked the question 'why' myself. Are we afraid of one another? Aren't we interested in one another? It may be that Canadian art is going to excel chiefly in landscape. You can't necessarily quarrel with it, but you can record it.

Aitken: You recently sent a portrait off to an exhibition, and you said that you knew if it had been a landscape it probably would have sold fast, but you wanted to send a portrait. So you must have some interest in educating Canadians to appreciate portraits.



Jeni Aitken — by Barker Fairley

Fairley: Of course. It's natural to want to do that. But you can't force it.

Aitken: Do you think too much stress and attention is still being given to the Group of Seven and that they are having too pervasive and lingering an influence on Canadian art?

Fairley: Yes, I think they are. I think their influence is a retarding force now. We ought to be thinking more of what further things there are to do; very little thought is given to that. So without their intending it or being in any way to blame, they are rather a barrier to the growth of Canadian art instead of being a point from which it could grow. I don't think they themselves were at all interested in the future of Canadian art. I knew them well, and they never thought about where it was going – only about what they were doing. This is understandable in them, but I think we can go beyond them now.

Aitken: Which members of the Group of Seven do you think will have the greatest staying power?

Fairley: Oh, six of them, equally. Seven is a very artificial number – very stupid. That was Harris's idea, I'm sure. He was sort of a mystic. But there are about six of them who are equally good. Thomson – he was really one of the group, only he died, that's all – Jackson, Varley, Lismer, MacDonald, and Harris. It's quite simple – those six, I think.

We haven't moved far beyond them – that's why they are such a vogue now. I don't mean they don't deserve all they've got – but at the present moment we're rather stationary. They wouldn't wish to monopolize, really, but they're not here to say anything about it.

Aitken: You once said, 'Painting is not work. Painting is making decisions.' Could you elaborate a little more on painting as decision-making?

Fairley: Well, for me the way I paint is very easy, so that a horse could do it if he made the right decisions. The technique of my painting is negligible, but you have to know what you want to do – then it's easy. Others may paint in a very elaborate way which makes the technique so difficult that no one can learn it except the man who does it, like Wyeth or Colville. My notion of painting wouldn't fit in their case at all. But it fits in mine.

Aitken: You have said that painting is a much easier medium than words. Could you talk a little about this?

Fairley: Of course, words have the advantage of being necessary for social communication, whereas painting or drawing is not a social necessity. Painting or drawing is a simpler process than writing. Writing is far more elaborate. The caveman made drawings at a primitive stage of society.

I think our modern education tends to frighten people off drawing or painting, as if it were something not accessible to them, whereas it really is within everybody's reach to do some. Music is much more difficult. You have to learn the structure of notes and so on, which in drawing you don't need at all.

Aitken: You said once that a teacher in the early years of your own schooling said you were the one student in the art class who needed 'special attention.' Do you think that this comment had anything to do with your putting off painting for as long as you did?

Fairley: I think that it helped me to be quite sure that painting was none of my business at a time when I didn't do it. When I was pushed into it, I felt differently, but prior to that, I knew I couldn't do it.

If I remember rightly, the only art we got at school was drawing cones and cylinders and shading them with pencils or charcoal. Anything more difficult than drawing a cone or cylinder, and shading it with charcoal powder and a pencil, I don't know. What could be more likely to put a boy off drawing? I think that put me off. Teachers who talk about perspective and such things should be given a holiday.

Aitken: What positive suggestions would you offer to the teacher of the history of art at the secondary school level?

Fairley: I probably shouldn't dwell on the history of art at all, because I'm naturally unhistorical. I prefer to think of literature as something that exists in the present – the books that haven't lasted can be left alone; the books that are alive now are what interest me. I don't mean that the history of literature isn't valuable, but it's secondary altogether to the reading of books as live books, whether they're old or new. And the same for art – I shouldn't spend much time on the history of art but I would look at good things.

Aitken: Would you take students to galleries and have them look at what's being painted now?

Fairley: If anything good was being painted. I frankly think that nonobjective painting is a wrong direction for art to take, and that nonobjective painters should be doing applied art in all its forms – decorating things that are lived in or used by people and not isolating them as pictures when they are not pictures but only self-indulgence in line and color. This is my view – I've always held it strongly. So I wouldn't take them to galleries to see that kind of work unless to show its limitations.

I wouldn't force history on them. I would teach them to appreciate paintings directly, whether they are old or new. I wouldn't talk history to students at all, except incidentally, say, in answer to a question a student might have.

Aitken: Northrop Frye once said that the ability to express oneself in painting, in writing, or even in composing tunes, ought to be a fairly natural secretion of any child of normal intelligence up to the age of twenty or so. We all know that for many students these 'natural secretions' appear to have quite dried up by the time they finish elementary school. But what should the teacher of art in secondary school do to keep the 'natural secretions' flowing in the students he teaches? Children all want to express themselves in drawing before they can write, but by the time they are in secondary school, very few are going on with it.

Fairley: That's not altogether undesirable. Not all people are artists. I don't think child art, if you want to call it that, inevitably leads into adult art. A person might not have done any child art and become an artist later. I wouldn't press it – I'd let those continue who wanted to, and those who didn't feel so inclined to drop it. They still could come back to it later. It may be that having done something as a child they would be helped by it later, but I wouldn't press it.

Aitken: You began to paint when you were over forty. Do you have any words of encouragement for the student of art in his middle years who perhaps has often longed, but never presumed, to put brush to canvas?

Fairley: I think if anyone is tempted to do it, he should start. Three things may happen. First, he may have some fun. Second, he may learn something about it. And third, he may even do something worthwhile. He can start at any age and do well in it if he's the right person for it, and he can only find out by trying. I don't think it needs early training. I had no early training – I was quite convinced I couldn't paint, and then a friend forced me to try, and I immediately liked it and went on. Now I think I can paint. So I do believe strongly that people should regard themselves as capable of further education, of growth, of new discovery in themselves, all their life long. It doesn't stop at forty, or fifty, or sixty. This is my conviction.

Aitken: You wrote recently that 'Where there is no judgment, the arts perish.' We are almost against judgment and against criticism. I don't think this augurs well for the future of Canadian art. Could you comment on this?

Fairley: Well, I think you need three things to have a thriving country in the artistic sense – you need creative people who paint the pictures and write the poetry, you need a public that receives them, and you need a critic who guides the public and interprets the one to the other. We've always had the public, and we've had painters and poets, but we've had very little guiding opinion to influence the public and to influence the artists in a good direction. You need that in a mature country. It really amounts to having a tradition, and the critic or the interpreter helps to make the tradition articulate. Even one good critic could have a tremendous influence. It is a great pity that there isn't some critic whom people do take seriously.

Aitken: Many teachers try to make connections between literature and art. For example, students at one high school are busy making mobiles based on Tolkien's *Lord of the Rings*, while students at another are being asked to find parallels between Charles G. D. Roberts's poetry and Canadian painting. The particular lines that picture 'a clamour of crows that fly / In from the wide flats where the spent tides mourn / To yon their rocking roosts in pines wind-torn' have often reminded people of Tom Thomson's pines. Is this an appropriate way for teachers to work with poetry and paintings?

Fairley: It's legitimate to make the parallel. There's no harm in that. Perfectly good. Once you have that kind of poetry, it would be unnatural not to compare it to landscape, because the poet is thinking of a landscape. But I don't think you'll find much poetry where the descriptive is sustained as it is throughout this poem by Charles G. D. Roberts. There's only the clamor of the crows to make it a noise instead of a thing seen. There was a great deal of descriptive verse written in the eighteenth century, and Lessing attacked it. He said that that wasn't poetry's business, and so he wrote a famous book of literary criticism called the *Laocoön*, chiefly opposing descriptive poetry. You have to be careful. Poets such as Frost write very little descriptive poetry. That's why Frost's poetry is so good. The same is true of Edward Thomas. They don't describe landscape. They reflect it, but they talk about humanity.

Aitken: I believe Arthur Lismer once used a poem of yours to inspire his painting class.

Fairley: Yes, he used my poem on ploughing. Arthur Lismer gave it to his class to draw. No harm in this – I took it as a compliment. You couldn't do it often. It happened to apply in that case, because I do analyze the act of ploughing in terms of stresses which a painting could reproduce.

Aitken: Then, while you'd admit to certain exceptions, you wouldn't agree to much teaching of art and literature in a comparative way?

Fairley: No. Let each of them inspire itself, and by life and contemplation. The less you think about one art in terms of another, the better it is for the art. Think about poetry alone, and not about whether it's related to music or painting, but think of it as something existing in its own right.

Aitken: More and more the distinction between the academic and the artist seems to blur in Canada. You are a great scholar of German and a great artist. What is your view of the university as a setting for creative endeavor?

Fairley: I never thought of the university, and still don't think of the university, as the home, the matrix of the creative life. I'm inclined to think the creative life thrives best outside the academy, not inside. Schools and universities teach good literature to people, but they don't teach them how to write good literature, necessarily.

Aitken: In high schools love poetry is often given a large amount of time and attention. How important a place would you give love poetry in a high school program?

Fairley: I probably wouldn't give students any love poetry. I'd give them poems of another character and let love poetry look after itself for a while, until they were a bit more mature. Then they could indulge in it. I personally don't want to teach love poetry. I think we overstress it.

Aitken: What poetry would you choose to teach?

Fairley: I would tend to choose great action poetry. That would be the thing to give them — epics and ballads, where love would come into the action of the poems.

Aitken: In the teaching of English literature, there is a great emphasis on thematic approaches, looking for archetypes, looking for the same themes in everything we read. The other day you pointed out that the treatment of Leda and the Swan, which I find ugly in Yeats, was beautiful in *Faust*. Do you think it is desirable for the teacher to organize the curriculum so that connections of this kind can be pointed out?

Fairley: I wouldn't make the search for this kind of connection the main method of reading literature. That's only a partial element of the work.

Aitken: You once said that you never really solved the problem of teaching literature, but that it shouldn't be tied to an historical approach. How would you plan a high school curriculum in literature, be it English or German, if you reject the historical approach and the thematic approach as well? How would you decide what a certain grade level should study in literature?

Fairley: A teacher of literature ought to have things that he is very interested in, and he ought as far as possible to be allowed to teach these to his students. The ideal approach to literature is a teacher enthusiastic about a particular work communicating it to others. I think a teacher should be able to say, 'This is what I'm deeply interested in, and I'm going to teach literature at the point where I'm most alive to it.' Let him do that, irrespective of history, or curriculum, or anything else. I believe that this could be done.

I love *Tristram Shandy* and I hate *Tom Jones*. If I were giving a course in eighteenth-century literature, I would have to do them both. I never could finish *Tom Jones*, quite. The teaching of modern literature came in in universities in the late nineteenth century, at the end of a highly historical period of culture in England. The historical approach and the philological approach were stronger than the artistic one.

You could have a system where sufficient freedom was given to the teacher to teach what he was keen on. That should be the leaven in the awkward curriculum that we are committed to. I wouldn't teach students the difference between a metaphor and a simile, or teach them images at all. I would say that I would penalize a teacher who was caught teaching a subject that he wasn't enthusiastic about. The teaching of literature should be so free that teachers could devote themselves to what they were keenest on.

Lake near Dorset, Ontario — by Barker Fairley

Aitken: We hear observations such as this one of Archibald MacLeish's made frequently in our schools — 'A poem should not mean, but be' — the implication being that meaning is not of primary importance. Could you comment upon the necessity for understanding?

Fairley: Speaking of translating Goethe's *Faust*, someone once said that the meaning was in the rhyme. I said that the meaning was in the meaning. I didn't refer to the prose sense any more than to the poetic sense. You know, if you read a line of Shakespeare — 'After life's fitful fever, he sleeps well' — there's meaning there. Everybody gets it. If there wasn't that meaning, the beautiful noise of it wouldn't be any good at all. It only has merit because it means what it means.

There's a lot of nonsense about literature nowadays. There's no poetic music without meaning. Otherwise, any Italian woman shouting, as they do on Robert Street, would be talking beautifully because Italian is beautiful. I hear them shouting, and it's very ugly. Meaning has to be there to make it beautiful.

Aitken: Canadian poetry is popular in our schools. Would you comment on the present state of Canadian poetry?

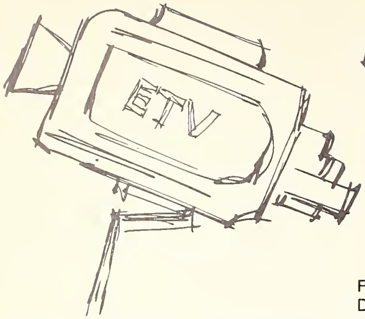
Fairley: Most of the poetry being written now — Purdy, Layton, and so on — doesn't appeal to me very much. There's too much dwelling on personal experience or private life, or it's too anecdotal, like Purdy, and not really resolved into poetry by being somehow made significant. It just records minor details. I don't think we have a great poet at the present time. I suppose Abraham Klein was near to being a great poet.

Aitken: I have been fortunate enough to hear you read some of your poetry. I understand you wrote most of it during a single year. What do you think stimulated you to write poetry at that particular time?

Fairley: I think I was disturbed at the time, and something made me write. I remember starting without warning, and then it petered out. This was very personal inspiration, and I think the true inspiration in art is something not personal, really, or not in the same degree personal. I don't have to be in the mood to paint a picture. I might not feel like it at all and yet get a good one. It's something that I do, and I don't have to be in a special mood to do it. I think this latter process is much more important than the other one.

Aitken: You said once that you thought that poetry took you inwards — inside yourself, whereas painting takes you out.

Fairley: Painting takes you right out of yourself — yes, I feel that very strongly. I'm anti-introspection. I think that the great revelations come when the personality isn't watching itself. I have a favorite quotation from Hugh McDiarmid —
'The inward gates of a bird
Are always open.
It does not know how to shut them.
That is the secret of its song.'



MEDIA AND THE

F. B. Rainsberry
Department of Curriculum/OISE

Because of the intensity of communication and the speed of change in the modern world, established traditions are challenged more than ever before. At the same time, our educational system is failing to equip our young people with the knowledge they require to meet the practical needs of modern living. We turn them out to live and serve in the world without instilling in them an understanding and appreciation of our traditions. We are inept in handling our responsibility for involving them in our culture. We are afraid to discuss values. And we esteem uninhibited self-expression more highly than art, which Tolstoy describes as 'a human activity having for its purpose the transmission to others of the highest and best feelings to which man has risen.'

Before we can redefine the purpose of the humanities in education and restructure our curricula accordingly, we must take action along certain lines. As individuals, we must come to terms with the metaphysical question of what is real in man and in the universe. We must recognize how traditions reflect discoveries or insights into reality made by past generations. If we believe that our heritage is important and that the record of our endeavor is relevant to the education of our young, we must have faith in the value of that record.

Commenting on this situation in an address to the American Association for the Advancement of Science in the year before the United States entered the Second World War, Walter Lippman said: 'There is an enormous vacuum where until a few decades ago there was the substance of education. And with what is that vacuum filled: it is filled with the elective, eclectic, the specialised, the accidental and incidental improvisations and spontaneous curiosities of teachers and students. There is no common faith, no common body of principle, no common moral and intellectual discipline. Yet the graduates of these modern schools are expected to form a civilised community. They are expected to have a social conscience. They are expected to arrive by discussion at common purposes. When one realises that they have no common culture, is it astounding that they have no common purpose? That they worship false gods? That only in war do they unite? That in the fierce struggle for existence they are tearing Western society to pieces? . . . We have established a system of education in which we insist that while everyone must be educated, yet there is nothing in particular that an educated man should know.'

Our concern with revising the curriculum for the humanities and with providing new resources for the use of classroom teachers in various media grows out of our belief in a common faith, a common body of principle, a common moral and intellectual discipline. We want these ideals to be re-embodied in the character and way of life of future generations. We want them to be significant for individual men and women, and not mere abstract ideals with no personal application. The primary concern of the humanities is the question of values; their content is the record of man's search for and experience of values, ideals, and goals.

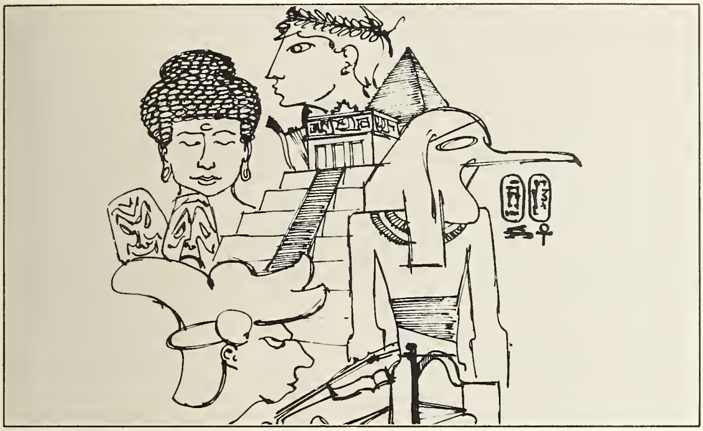
The role of the mass media in the development of a curriculum for the humanities has yet to be defined. Unfortunately, in their 1964 report the Commission on the Humanities gave no philosophical assessment of the use of the media in this area and, at best, expressed only an operational and pragmatic concern. It praised the creative uses of prose, poetry, art, music, and sculpture, but ignored the art of using media for creative expression. Obviously, any approach to the creative use of the mass media must be an informed one, and the first step must involve an investigation of the capacity of television and the other media to respond to the needs of the curriculum. It is not enough to recommend, as the American Metaphysical Association has done with regard to philosophy, that items of enrichment be added to television programming. We must first determine what contribution they can make, how they can be presented, and how they will sharpen the critical awareness of viewers so that demands for higher standards of television entertainment will result.

Writing about the future of the humanities in 1947, I. A. Richards deplored the failure of radio, television, and screen to provide some remedy for the shortage of good teachers of the humanities and good resources for classroom use. Unfortunately, his comments still apply: 'Radio, TV, and the screen propagate most successfully the most superficial, the most facile, and the least educating elements of a culture. . . . This is partly because, as programs, they have to go on. . . . There is no time for what they present to be deeply pondered. . . . But in every culture it has been the things which received the most lasting and recurrent attention . . . which have done the most part of the work of the humanities. Mass media, at present, replace such continuous shaping forces by an incessantly shifting play of light and confusing impacts. It is not surprising that they are of little help in seeing life steadily and seeing it whole' (*Speculative Instruments,* p. 62).

Of course, we can all recall good and enjoyable television programs — Shakespearean plays, historical dramas, documentaries — but their infrequency and the fact that the tycoons of the broadcasting, the advertising, and the motion-picture industry have trifled with our values, our traditions, and especially our minds, is to be deplored.

But we shall not win the media for the cause of the humanities by venting our spleen against the popular culture. Nor can we achieve our purpose by forcing producers to program only the classics and serious discussion forums. We must try to understand why this society enjoys programs accenting violence and power. What are its emotional needs? What are its frustrations? Why is this type of program preferred? How can we reach people through the tasteful and artistic use of film and television? The elimination of sex and violence does not provide a solution, for

HUMANITIES CURRICULUM



we would have to destroy the artistic unity of many classics in pursuit of such a Puritan ideal. The intelligentsia of our society must strive to understand the media so that they may write and produce more skillfully.

In the past, our schools have failed to foster creative endeavor in the arts and have developed courses of study in terms of more pragmatic vocational objectives. We have allowed a kind of cynicism to develop by discouraging significant discussion of our social and cultural values. We have frequently espoused abstract and insubstantial ideals and given the impression we are following them when, in fact, the record shows otherwise. By our actions, we have alienated some of our most talented and creative young people, and in so doing we have forfeited the opportunity to nourish in them the living qualities of our heritage. In consequence, and with idealistic zeal, they have undertaken to make their own art — ignoring both our abstract ideals and our heritage. They confuse *all* tradition and past cultural achievement with academic dullness and devote themselves to art that is hostile, defiant, and out of tune with any continuing vital artistic expression. To close the widening gap, we must encourage both lively criticism of the past and individual creative endeavor in the present in the humanities. We must build our curricula around works of art born of man's struggle with problems that are always before him. Instead of offering classical or Elizabethan drama as antidotes to violence and bad taste, we must look more closely at how issues of violence and power were dealt with in the classics and compare their handling of these problems with contemporary works. By direct evaluation, we can become involved with issues of today and meet young people and the 'popular culture' on common ground.

If we contend that the future development of the humanities must take place on a broad, interdisciplinary base, a wide range of materials provided by many media must be made available. Since it is unrealistic to assume that this will happen quickly, we must make the best possible use of materials already on hand. What social insights can we gain from a study of the production techniques and content of variety programs? What assessment of society and its values do our young writers reveal in their television scripts? By familiarizing ourselves with the television viewing habits of children, can we influence them to watch and discuss programs that lend themselves to critical evaluation? How can we profitably use a knowledge of feature films in current circulation at the theaters? Ultimately, we will need to procure rights to show both television and theatrical films in schools so that we can turn out graduates who are well informed about the use of media in our society.

As educators concerned with the past, the present, and the future, we must set our minds to the question of what the new technology means to us. We must develop a generation of artists and scholars who have the courage to use media innovatively in their effort to persuade and motivate men to build a society that honors the achievements of the past and shows the way to meaningful and productive action in the future. As we exploit technological advance in the interests of education and social or cultural development, we must keep our procedures flexible. Not only must we overtake the educational opportunities afforded by radio, film, and television, we must now understand and use the computer and related facilities to tap the vast, unused resources of our libraries. The dilemma that confronts us is how to make available and use the vast resources of knowledge that we have collected while controlling the media that make such availability possible.

The problem of defining and teaching the humanities has been with us since the Greeks first raised the issue. Perhaps much of our past failure to develop adequate curricula lies in our failure to understand the true nature of the creative self and the dynamics of society. To this unresolved human problem, our age has added the perplexities of technology. In our attempt to design curricula for the study of the humanities, understanding the media we use is only a little less urgent than understanding the message we seek to transmit.

Individually Prescribed Instruction

J. Edmunds,
State College, Pennsylvania

A program for elementary schools
that is being created by the University of
Pittsburgh Learning R & D Center
and tested by Research for Better Schools,
Inc., Philadelphia.

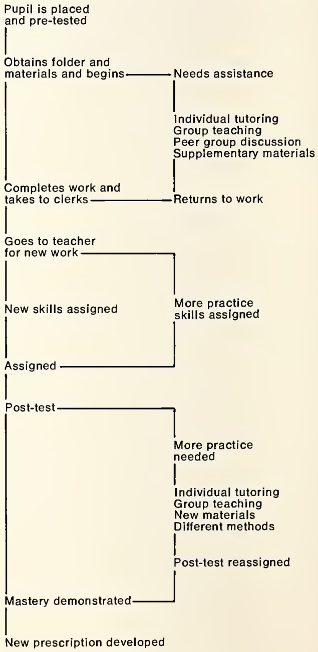
There is nothing new in the idea of individual instruction – indeed, that was the way education began. But it is only within the past ten years that it has become a major concern in our school systems. The problem, as everybody knows, is how one teacher can instruct upwards of thirty children on an individual basis.

When it was formed in 1964, the Learning R & D Center in Pittsburgh took as one of its main objectives the creation of an individually prescribed instructional program – IPI, as it has come to be called. The developmental model on which the Center's program is based begins by listing specific educational objectives. For example, in the maths program, Level B Addition/Subtraction, Skill 5, the objective is stated as follows: 'Given addition and subtraction problems written in either horizontal or vertical form, the student solves the problems.' Related to these objectives is an extensive battery of instructional materials through which the students work with minimum help from the teacher. The following is a description of the instructional program developed for achieving the addition/subtraction objective above:

Draws jumps on number lines to find a sum and difference
Adds two numbers horizontally, sums to 18
Subtracts two numbers horizontally, sums to 18
Adds the same addends both horizontally and vertically
Adds vertical and horizontal problems
Subtracts vertical and horizontal problems
Adds and subtracts vertical and horizontal problems
Curriculum Embedded Test I
Adds and subtracts vertical and horizontal problems
Curriculum Embedded Test II
Teaching Aids:
Dominos, domino cards, number lines, abacus, number rods, flash cards

A fundamental aspect of IPI is the provision of tests to diagnose student skills. Students are initially given a placement test to find out where they fit into the learning program. Pre-tests and post-tests are then used to evaluate student performance in each unit of instruction. When a student shows mastery of every skill in the post-test, he proceeds to the next unit, where he first takes a pre-test and then is assigned work on those skills where he scores less than 85 percent. There are also curriculum-embedded tests to assess mastery of particular skills within the unit. All tests are scored by teacher aides. The student's work page is scored either by himself or by an aide. The teacher's job is to evaluate the work after it is scored and to diagnose the individual student's needs. On the basis of this diagnosis, the teacher then develops a daily lesson plan or 'prescription' for the student. Each assignment is based on what a particular student can accomplish in a class period and is reviewed by the student and teacher on a

Figure 1
Student Activities



daily basis. As each student proceeds with his 'prescription,' the teacher carefully analyzes his progress. The 'prescription' thus becomes a continuous record of how well each student masters the material assigned.

Unlike programmed learning, IPI offers a wide range of learning possibilities. Children may work independently but, when the need arises, peer-tutoring, small and large group instruction, and seminars play a key role in the IPI process. Furthermore, students work at their own pace, evaluation tests ensure that they do not study what they already know, and within certain prescribed limits they have some choice as to what they study. A typical pattern of student activities is shown in figure 1.

The Scope of IPI
At first, the Center confined itself to programs in mathematics and reading. More recently, programs in science and spelling have been started, and there are future plans for adding social studies.

Many of the program materials for the higher grades have still to be prepared, but eventually most of the programs will extend from kindergarten to grade 8. In preparing materials, the Center has made extensive use of existing texts and teaching aids, organizing them into individualized learning sequences, and where necessary has created new materials. From the outset, the Center has had the good fortune to be able to test its ideas and materials at a local elementary school — Oakleaf. Then, as described later, the involvement of the Research for Better Schools (R.B.S.) Laboratory in developing IPI has led to large-scale testing of the programs in many schools across the North American continent. From the results of these tests, modifications are made to the programs, which are envisaged not as ultimate panaceas but as continually evolving efforts to meet the needs of individualized learning. Let us look at some of the specific programs.

IPI Reading — The materials consist of lesson plans for the teacher and work sheets, references, books, tapes, etc., for the children. Figure 2 shows the breakdown of the program into five overlapping areas of study, and the approximate relation of each of these areas to grade levels. Each child is initially given a placement test to determine where he fits into the program.

The first area of study is 'Decoding' — abstracting symbols, relating them to sounds, and blending the sounds into meaningful units. 'Skills Sequence' is an extension of decoding into word comprehension and vocabulary development. 'Directed Reading,' as the name implies, is chosen by the teacher and is related to the child's mastery of decoding and sequence skills. In 'Selected Reading,' the child chooses his own reading material from books that are related to his degree of mastery of the basic skills. A recent development in 'Selected Reading' for the earlier levels has been the preparation of tape cassettes that are tied in closely with the reading and pictorial matter in the program and enable the child to follow a story on his own. 'Library and Reference' provides instruction in such skills as classification and how to use a card index. For example, the child has work sheets that require him to use an encyclopedia; in the work sheets are points at which it is suggested he signal for the help of the teacher.

Figure 2
IPI Reading Program

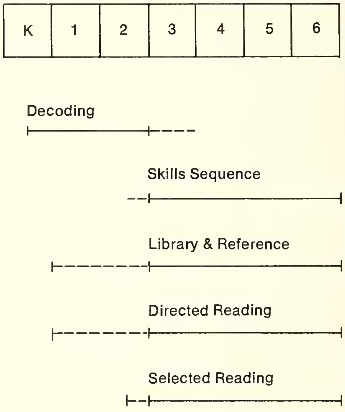


Figure 3
IPI Mathematics Program

(x = units with objectives)	*Level*						
Unit	*A*	*B*	*C*	*D*	*E*	*F*	*G*
Numeration – Place Value	x	x	x	x	x	x	x
Addition – Subtraction	x	x	x	x	x	x	x
Multiplication		x	x	x	x	x	x
Division		x	x	x	x	x	x
Fractions	x	x	x	x	x	x	x
Money	x	x	x	x			
Time	x	x	x	x	x		
Systems of Measurement		x	x	x	x	x	x
Geometry		x	x	x	x	x	x
Applications		x	x	x	x	x	x

Figure 4
Learning Resources of IPI Science Program

Learning Resources	*Contribute to the attainment of . . .*				
	Student Self-Direction Goal	Student Co-Evaluation Goal	Affective Goal	Inquiry Goal	Scientific Literacy Goal
Individual Lesson		x		x	x
Individual Taped Lessons				x	x
Men and Ideas Filmstrip			x		x
Mini-Exploration	x	x	x	x	x
Mini-Investigation	x	x	x	x	x
Directed Readings in Science		x	x		x
Directed Group Activity	x	x	x	x	x
Student Seminar			x	x	x
Student Activity	x	x	x	x	x
Invitation to Investigate	x	x	x	x	x
Self-Initiated Independent Activity	x	x	x	x	x
Science Learning Game			x	x	x
Science Books (selected readings)	x	x	x		x
IPI Science Journal (student pub.)				x	x
Guidance and Selection System	x	x			x
Individual Prescription	x	x			

At present, the 'Decoding' area of the program is being tested in forty-two schools under the aegis of R.B.S. Work is already under way to include more horizontal activities in 'Decoding,' in the expectation that this part of the program will be publicly available in about four years. 'Selected Reading' and 'Directed Reading' have been tested by R.B.S., and will be available shortly. 'Skills Sequence' has been tested and is undergoing major revision. 'Library and Reference' will shortly be ready for testing by R.B.S.

IPI Mathematics — The mathematics program was the first to be developed by the Center. Since then it has undergone considerable testing and revision. The present program covers kindergarten to grade 6, and it is planned to extend it to grade 8. Figure 3 shows the framework on which the program is based. Each of the sixty units has a pre-test and a post-test to assess the student's mastery. All the levels have been tested by R.B.S. in over three hundred schools and have been revised in the light of the test feedback. Levels A, B, and C are now ready for publication; levels D, E, F, and G should be ready in a year's time.

Meanwhile, work has begun on a complete revision of the program on the basis of a new set of objectives. In this new program, which should be ready for testing by R.B.S. in 1975, more attention is being paid to individual learning styles. The program will be broader and more flexible (criticism of the present program is that it is too linear) and will incorporate more up-to-date findings on the teaching of mathematics. Although the present program embraces a number of concepts inherent in the 'new math,' it is still fairly traditional.

IPI Science — The elementary science program was started only a couple of years ago, but has benefited from experience the Center's staff gained in developing other programs. The present program covers grades 1 to 4 and will eventually extend to grade 8.
Each level in the program consists of two or three activities named after famous scientists. The D level, for example, contains sections entitled 'Dalton — molecules,' 'Lavoisier — burning,' and 'Haldane — respiration.' This relating of activities to people is designed to emphasize the social aspect of science, and each activity has a filmstrip depicting the scientist's life.

The five goals of the program, which are all given equal emphasis, are listed in figure 4 together with the learning resources for attaining these goals. The activity on burning, for example, is centered around the candle. Before embarking on an activity, each child is pre-tested to discover the extent of his knowledge in that activity so he can be provided with an individualized lesson plan. Lessons combine information with experiment, and there is a mini-exploration course from which the student can choose experiments he wants to follow up.

At present, levels A and B are being tested by R.B.S. in six schools, and there are hopes that they will be available by the fall of 1973. Levels C and D are undergoing testing at Oakleaf Elementary School, and levels E to H are still in the planning stage.

The Computer Program

Among the research related to IPI going on at the Learning R & D Center is research in the use of computers. This part of the Center's research program is divided into four phases: computer-managed instruction, which among other things provides teachers and students with the detailed individual performance records so essential to the IPI evaluation process; computer-assisted instruction, which, as well as supplying immediate feedback of specific information on a variety of topics, diagnoses student needs and prescribes individual programs to meet those needs; computer-assisted testing, still in an early stage of investigation; and the development of computer hardware for use in the other phases — particularly in exploring the practical applications of small-scale computers.

The Center is carrying out much of its research in the educational uses of the computer at Oakleaf Elementary School. R.B.S. is also testing a computer program based largely on the Center's research in a number of other schools. The program is still a long way from completion, but results to date suggest that, although the computer can never replace the teacher, it can be of enormous asistance to him in a program such as IPI.

Photo: Charles Ellis

Role of R.B.S.

Research for Better Schools in Philadelphia was one of several educational laboratories established in the States in 1966. A high priority in its work has been testing and developing IPI materials in a variety of schools. Five of the three hundred schools testing the maths program are Canadian — in Edmonton, Calgary, and Millarville, Alberta, and in Peterborough, Ontario, where the two participating schools are part of the POISE project. There is also a school in Taiwan testing the maths program, and a school in Athens, Greece, testing the maths and reading program.

In the first stage of testing, R.B.S. places a program in half-a-dozen schools for a two-year period. Much of the revision in the program materials resulting from feedback from these schools is done by the staff at R.B.S. In the second stage of testing, many more schools are involved. These schools are selected from the large number of requests to participate in IPI that R.B.S. receives. In the selection process, strict criteria are applied both to ensure that the would-be test school knows what it is undertaking and to satisfy R.B.S. that it is able to make a useful research contribution.

With schools embarking on an IPI program, an important factor in the success of the operation is how well trained the school staff is to implement the program in a school setting. R.B.S. holds ten-day training workshops for principals of schools, and it is then up to the principals to train their staff. To help schools with problems as they arise, R.B.S. has twelve field consultants.

IPI materials are supplied to the test schools by R.B.S., and this involves an enormous production and distribution job — for example, the forty-two schools doing the reading program required eleven million items. When programs have been completed, they will be offered for general distribution. New Century Division of Meredith Press will be coming up with IPI mathematics in 1972, the first IPI program to be made publicly available.

Assessment of IPI

The overall aim of IPI is to provide a model curriculum for elementary schools that is both cost effective and capable of providing all kinds of children with an individualized education. The deadline is 1976. After that, the Learning Center and R.B.S. may turn their attention to producing similar programs for high schools.

One of the great strengths of IPI is that it is replicable. Exact description and precise measurement are built into the program. Almost any elementary school adopting IPI and implementing it according to the procedures laid down can be sure of making it function successfully. There are perhaps schools with more imaginative individualized programs, but these tend to rely on personal qualities of the teaching staff or other special circumstances. The creators of IPI do not regard their program as an end but as a beginning; continued improvements will be made both by them and by the teachers who use the program.

One criticism of IPI is that it is too structured — especially that the role of the teacher within it is too structured. With good teachers, this is immaterial; they manage to rise above or make use of any structure given them. With not-so-good teachers, it is arguable that the structuring of their role inhibits them in doing their job effectively. At least it gives them a basis of confidence. More pertinent, perhaps, is criticism of the cost of IPI: at present the IPI maths program costs about $10 a year per child, compared with about $1.50 for conventional maths programs. Costs, of course, will drop as the programs go into commercial production, but they will still likely remain higher than traditional programs because of the variety of materials involved. Ultimately, then, it will be up to boards of education and individual schools to decide whether they think the cost is worth it. Certainly the results on children who have been through the IPI system so far indicate they perform at a higher level and show more independence of thought than those educated in a traditional system.

For further information about IPI write to:
The Program Director
Research for Better Schools, Inc.
1700 Market Street
Philadelphia, Pa. 19103
U.S.A.

Visits to demonstration schools conducting IPI programs can be arranged.

OISE Fifth Anniversary Lecture Series — Some Extracts

'Maturity is not a thing you find in people. . . .'
Northrop Frye

'I see human perfection in the progressive elimination of institutional intermediaries between man and the truth he wants to learn.'
Ivan Illich

'Education has not been so successful in its methods of problem-solving that it can afford to reject an approach that science uses.'
Neil Postman

'The role of the computer is like the role of books: to amplify the skills and time of the teacher.'
Patrick Suppes

'The teacher's knowledge should . . . encompass the understanding of each child.'
Vinh Bang

'What can we do in a society that tends in so many ways to stimulate the thirst for abstract knowledge and books, but frequently, so frequently closes its heart to people?'
Jean Vanier

A series of lectures, sponsored by the Ontario Institute for Studies in Education in the fall of 1970, marked the Institute's fifth anniversary. Seven distinguished educators representing five countries took part. Extracts from the remarks of six follow. The text of the lecture by Keith Spicer is not available.

The Definition of a University

Northrop Frye
University Professor, University of Toronto

'Maturity is not a thing you find in people; it's a thing that you find only in certain mental processes. These mental processes are what the university is all about: the mental processes of reasoning, as distinct from rationalization; of experiment; of considering evidence; of the precise and disciplined imagination that appears in literature and the arts. These processes are the end and aim of the right kind of habit, the practice-habit on which all civilized life is founded. . . .

'. . . Of all the superstitions that have bedeviled the human mind, one of the most dismal and fatuous is the notion that education is a preparation for life. It was very largely this notion of education that caused the projecting of anxiety and the fear of change on the 'adolescent,' and on efforts to maintain him in an imaginary state of innocence.

'There are two forms of society, . . . the temporary and transient appearance of society that comes to us through newspapers and television, and the real structure of society that is revealed by the arts and the sciences. Education, therefore, should be defined as the encounter with real life, whereas the world that involves us as citizens and taxpayers and readers of papers and people with jobs is not real life but a dissolving phantasmagoria. Of course, it is possible that this encounter with real life can go to the point of making one maladjusted to the dissolving world. This is, in fact, one of the functions of education. The last thing that education ought to try to do is to adjust anybody to the appearance of a society that will not be there by the time he has become adjusted to it. But it can and should make one to some extent maladjusted. . . .

'. . . The tutorial system is of course greatly admired, especially by those who have never been exposed to it. But the tutorial system with all its virtues cannot give a panorama or perspective as a lecture can do. There is the corresponding mystique of the seminar. The seminar certainly has a central place in education, and should be there, and very prominently there, from the age of twelve to the time of the Ph.D. At the same time, students expect and ought to get something better from their tuition fees than merely the sound of their own ignorance coming back from the four walls. . . .

'. . . It is the university's task to define the vision of society. To implement that vision is the business of concerned organizations, like churches, pressure groups, and political parties. It is not the business of the university as such. In this neofascist age, there are many who dislike the kind of freedom the university represents, and would like to kidnap the university by a pressure group of some kind, radical or established, according to their prejudices. But, if this happened, society's one light would go out. . . .

'. . . Academic freedom is the only form of freedom, in the long run, of which humanity is capable, and it cannot be obtained unless the university itself is free.'

The De-Schooling of Society

Ivan Illich
Centro Intercultural de Documentacion
Cuernavaca, Mexico

'Post-scholastic consciousness is bound to appear suddenly, unexpectedly, as changes happen in a whirlpool. I remember, as a child, standing on a bridge and thinking that I would see how the whirlpool's pattern changed. I never saw it. Winter and summer it was the same. Then, one stone would fall into the basin and the whole pattern would change from one moment to another. This is the way someone falls in love, the way social consciousness changes. The consciousness of what has happened to the schools will be as surprising to us as was the removal of the altar and the throne from the center of the stage of Western society. . . .

'I want to distinguish my aim to de-school society from objectives of other critics of the school system who seek either to transform the world into a classroom or to establish new free schools, independent of the system. The first I would call Jacobins, the second Bourbons. . . .

'. . . The axioms from which I start are different. I trust men to use their hearts and their brains. I want to live in a transparent society in which each moment of life is a surprising and meaningful participation in mutual education. I see human perfection in the progressive elimination of institutional intermediaries between man and the truth he wants to learn. . . .

'A good educational system should have three purposes: it should provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn from them; and finally, furnish all who want to present an issue to the public with the opportunity to make their challenge known. . . .

'Things are basic resources for learning. The quality of the environment and the relation of a person to it will determine how much he learns incidentally. Formal learning requires special access to ordinary things, on the one hand, or, on the other, easy and dependable access to special things made for educational purposes. . . .

'Finding resources for material made specifically for education is only one — and perhaps the least costly — aspect of building an educational world. The money now spent on the sacred paraphernalia of the school ritual could be freed to provide all citizens with greater access to the real life of the city. . . . We should return to the tradition of the bar mitzvah or confirmation. By this I mean we should first restrict, and later eliminate, the disenfranchisement of the young and permit a boy of twelve to become a man fully responsible for his participation in the life of the community. . . .

'School does offer children an opportunity to escape their homes and meet new friends. But at the same time this process indoctrinates children with the idea that they should select their friends from among those with whom they are put. To provide the young from the earliest age with invitations to meet, evaluate, and seek out others would be to prepare them for a lifelong interest in seeking new partners for new endeavors. . . .

'. . . Good schools try to bring out the common interests of students registered in the same program. The inverse of school would be an institution that increased the chances that persons who shared the same specific interest could meet, no matter what else they had in common. . . .

'Local communities are valuable. They are also a vanishing reality as men progressively let service institutions define their circles of social relationship. Milton Kotler has shown that the imperialism of 'downtown' deprives the neighborhood of its political significance. The protectionist attempt to resurrect the neighborhood as a cultural unit only supports this bureaucratic imperialism. . . .

'The relationship of master and disciple is not restricted to intellectual discipline. It has its counterpart in the arts, in physics, in religion, in psychoanalysis, and in pedagogy. It fits mountain-climbing, silver-working, and politics, cabinet-making and personnel administration. What is common to all true master-pupil relationships is the awareness both share that their relationship is literally priceless and in very different ways a privilege for both. . . .

'To rely for true intellectual leadership on the desire of gifted people to provide it is obviously necessary even in our society, but it could not be made into a policy now. We must first construct a society in which personal acts reacquire a value higher than that of making things and manipulating people. In such a society, exploratory, inventive, creative teaching would logically be counted among the most desirable forms of leisurely "unemployment."'

Telling It Like It Ain't: An Examination of the Language of Education

Neil Postman
Professor, Division of English Education, Speech, and Educational Theater
New York University

'My view at the moment is that standard-brand school-talk is a major obstacle to our thinking new thoughts about education, and a major factor in our perpetuating old thoughts. I know that some people believe that language is merely a "vehicle" for thought. But I tend to agree with Wittgenstein, the great linguistic philosopher, who said that language is not only the vehicle for thought, it is also the driver. If you want to get some sense of what that means, imagine that the only numerical system available to you is what we call Roman numerals. Now, try to multiply 476 by 87. I think you'll find it impossible to do — unless, of course, you translate the Roman numerals into Arabic numbers. But if you are stuck with Roman numerals, this is a thought or operation you cannot perform. The point is that the language you think in will always limit the kinds of things you think. And obviously, what you can't think, you can't do. . . .

'. . . Quite often, when I have a conversation with a teacher or college professor, I feel the way one feels in a conversation with a drunk. By that I mean the drunk always wins; and he wins because he establishes the ground rules, including the tone and style of the encounter. What I am getting at is this: if you permit the language of school-talk . . . to go unexamined, you have to end up thinking pretty much what everyone else is thinking, and has always thought. If a man tells you he is possessed by devils, and you reply, "Which ones?," you and he may become friends, but neither of you will go much beyond where you are. If you reply, "What the hell are devils?," insight then becomes possible for both of you. So let's consider a little more standard-brand teacher and student talk, in the interest of keeping ourselves open to doubt about the existence of devils. . . .

'. . . Addition, as a strategy for reforming school-talk and school-thought, is not sufficient. Medicine could make no genuine progress in its attempts to develop germ theory and bacteriology while its lexicon retained the terms "miasma" and "humors of the blood." Physical chemistry could not evolve a workable theory of combustion while its vocabulary included the word "phlogiston." Psychology could make no significant advances in its exploration of human behaviour so long as its new vocabulary coexisted with the old terms such as "demons," "devils," and "possession." What progress required in each case — and in countless others in the history of science — was not just the addition of new words, but the subtraction of old ones. . . .

'. . . Suppose we simply subtracted the word "school" and all its subvocabulary from the language of education. . . . How would we distinguish between learning and living? between learning and playing? between education and entertainment? between physical education, social education, and emotional education? Would our not knowing the difference make a difference? . . .

'. . . There is another linguistic strategy that may, in the long run, prove even more productive in generating creative ideas and practices in education. It consists, quite simply, of renaming what we have been referring to as "a problem" and calling it "the answer." . . .

'If the method of problem-solving suggested . . . strikes you as a somewhat dubious semantic trick and nothing more, let me remind you that virtually all the revolutionary advances in science resulted from precisely that form of redefinition. . . . Education has not been so successful in its methods of problem-solving that it can afford to reject an approach that science uses. . . .

'. . . Everyone seems to agree that there are just too many students, and too few teachers. Well, that problem could easily be an answer, and one that might triple the number of teachers in our schools, at no cost whatsoever to the taxpayers, while enriching the education of all students. The solution: let the students be teachers. If you think this idea is flippant, . . . it may be because you're still thinking of teaching and learning as two distinct processes. . . . Teaching-learning is a single, transactional process. . . . Why not, then, have each student from junior high school on spend some part of his school time each year teaching younger students—perhaps those very "subjects" he is having some difficulty with? . . .

'Another problem: according to surveys of student attitudes toward school, what students like least are their major subjects, and what they seem to like most are their extracurricular activities. . . . Answer: make the extracurricular activities the major subjects, and the major subjects extracurricular. Again, I am not being flippant. . . . As things stand now, the main difference between extracurricular activities and major subjects is the greater involvement and participation of students in the after-school programs. Isn't that just what we are striving to bring into the classroom during the school day?'

Alternatives Through Computers

Patrick Suppes
Director, Institute for Mathematical Studies in the Social Sciences
Stanford University

'The purpose of my preliminary remarks is to emphasize how transient the phenomenon of mass education has been and, consequently, how relatively easy it would be to change it. Schools are not institutions that are deeply embedded in the culture of western civilization, or in the civilization of any other part of the world. Their shape and form have been constantly subject to change. There is no reason that schools must exist as they have for the past thirty or forty years. . . .

'Let me turn now to various possible levels of interaction between the student and the computer program. Following a current usage, I shall refer to each of the instructional programs as a particular system of instruction. At the simplest level, individualized drill-and-practice systems are meant to supplement the regular curriculum taught by the teacher. The introduction of concepts and new ideas is handled in conventional fashion by the teacher. The role of the computer is to provide regular review and practice in basic concepts and skills. . . .

'At the second and deeper level of interaction between student and computer program, tutorial systems take over the main responsibility both for presenting a concept and for developing the skills necessary for its use. The intention is to approximate the interaction a patient tutor would have with an individual student. . . .

'At the third and deepest level of interaction, dialogue systems are aimed at permitting the student to conduct a genuine dialogue with the computer. The dialogue systems at present exist primarily at the conceptual rather than the operational level, and I do want to emphasize that in the case of dialogue systems a number of technical problems must first be solved. One problem is that of recognizing spoken speech. Especially in the case of young children, we should like the child simply to be able to ask the computer program a question. . . .

'In connection with the development of small schools, . . . the introduction of computers as instructional devices is just as inevitable as the introduction of books in the past. . . . It is easy to imagine a refrain that could have been heard in the eighteenth century, to the effect that it is terrible to create an impersonal distance between the teacher and the student by handing the student a book and not letting him listen to the lilting voice of the teacher's recitation. . . . I do not see the computer as an instructional device in competition with the teacher. The role of the computer is like the role of books: to amplify the skills and time of the teacher. . . .

'. . . Through most of the history of civilization, young children have been taught primarily at home. . . . We now have the technical possibility of returning the student to the home or to small neighborhood groups. . . . In describing this possibility, . . . I am not maintaining that it is necessarily a wise move. I do, however, think it important that this technical possibility is now available. . . . I envisage a situation in which a master teacher would divide his time among several units. The mothers of the children would assume responsibilities for supervision and some would work as teachers' aides. This would be completely natural, because of the proximity of the school to their homes. . . .

'. . . Perhaps the most important economic problem . . . is to be tough-minded about ways in which technology can actually substitute for labor-intensive efforts by teachers. . . . A great tradition in education is that every new technology simply becomes an add-on cost to the present bill for instruction. In future, it will likely be impossible to sustain this system. The economics of education will demand that technology be used as a substitute for rather than as a supplement to teachers. This is not a problem for the teachers. . . . It means that the skills required of teachers will increase, the professional requirements for teachers will increase, their status and compensation will correspondingly increase, but the absolute number of teachers relative to a given population of students will decrease. . . .

'. . . We do not have an explicit understanding of the way in which one intelligent human being conducts a meaningful conversation with another. It is a limitation that is as old as Plato. Many of us can talk well, and sometimes even listen, but we have a poor understanding of how we do it. We have no analytical grasp of the structure of a dialogue. We do not know what the ingredients of intellectual discourse are between tutor and student, and until we have this deeper understanding we shall not be able to reach as far as we want with the kinds of technology discussed.'

The Psychology of Jean Piaget and Its Relevance to Education

Vinh Bang
Assistant Director, Department of Psychology, School of Psychology and Education, University of Geneva

'Scientific psychology – whose growth as everyone recognizes, has been rapid and varied – has fallen short of one of its goals, that of serving the individual, and consequently, of serving society. . . .

'If the psychologists become self-critical, then it is only fair that the educators take a close look at the schools. In my view, the prognosis will not be too hopeful, and a suitable therapy will have to be tried by psychologists and educators together. . . .

'Child psychology has, I think, made our picture of the child more attractive. There is an analogy here with color television. It was thought that child psychology would offer a new dimension to the teacher. Instead, it has only added color to the picture he had before. Armed with child psychology, the teacher thinks that he understands his pupils, whereas he has only replaced a black and white picture with a colored one. . . .

'. . . The importance of Piaget to the science of psychology is that he has tried to explain the development of cognitive structures.

'Piaget began by studying the logic of the child and the development of logical structures with a view to understanding the acquisition of knowledge. . . .

'In 1947, . . . Piaget announced that he had adopted a new research methodology . . . that led to an understanding of the reflective and reasoning processes of the child. . . .

'The wealth of observations – from the reflex actions of the newborn baby, to the reasoning processes of the adolescent and the propositional logic of formal adult thoughts – at first glance gives the impression that Piaget is easy to understand. The researcher who obtains the same results under the same observational conditions is led to believe that he has understood Piaget's theory. As a result, some well-intentioned psychologists and educators think that they can apply the results of Piaget's psychology to education simply by transforming the research techniques . . . into exercises for students. Such a procedure is certainly doomed to failure. Teachers can thus quite justifiably consider Piaget's work questionable or, if they maintain a measure of confidence in him, they may reproach him for not being concerned about applied psychology and for not contributing to education.

'We should not forget that educational psychology has its own interests and goals. "The child" is not its object of study. The developmental psychology of Piaget has made it possible to understand the child, but the role of education is to aid and guide the child in the acquisition of knowledge. A proper reconversion would consist of making the Piagetian model of child development operational for education in general and for the teaching-learning situation in particular. . . .

'The education of teachers raises another problem. If they have not received a good education in general psychology, and if they have not received introductory background and practical experience in the methodology of developmental psychology, they will acquire only a superficial understanding of Piagetian psychology. They will interpret it badly and apply it wrongly. . . .

'The teacher must understand the child. There is a saying of Rousseau's, "Begin by getting to know your students, for certainly you do not know them." The teacher's knowledge should . . . encompass the understanding of each child who acts in a given environment, the school.'

Educators and the Mentally Deficient

Jean Vanier
Director
L'Arche, Trosly-Breuil, France

'I'll tell you a story that happened not too long ago when I visited a psychiatric hospital. At the far end of the hospital was the chronic ward. As we went through the building, we went first to the wards where people were ready to return to the world of normality. Apparently, they were nearly cured. They were working at desks, and as we went by we would say, "Hello," and they wouldn't look up. They were soon to enter into the normal world. Then we went deeper and deeper into the world of chronic mental sickness and mental retardation till we came to the last ward. As we walked in, they would come up to us and say, "My name is John." And I would say, "My name is John too. Isn't that great?" Then we would really get into deep and interesting dialogue because there were no barriers. It was very simple and easy. Then as we came back gradually toward the normal world, at the last ward we would say, "Hello," and maybe some-one would look up. Finally, we had to go back into the normal world where people just don't look at you at all.

'The specialist always risks falling into a trap in which knowledge clouds compassion. Often he is interested in the problems of people, but not in the people themselves. He is interested in the handicap, but not in the handicapped; in the sickness, but not in the sick person. This happens frequently with specialized people, but not always. Specialties can be a flight from compassion, but they can also be a flight to compassion, a search for greater efficacy in compassion. They can be an attempt to really help and heal the person.

'We have to delve into the conscience of our society. We have to ask ourselves why we have created the situations we have created for the handicapped: the psychiatric ward I described. We also have to delve into the unconscious of our society, into the motivation that has brought about this condemnation and made us lock these people up. We react in this condemnatory way with a purity of conscience that is alarming, good people that we are. Beware of good people. It is fantastic the way we can hurt people with a benevolent smile. We have to ask why is it we have such difficulty relating to those who are handicapped. Why am I so fearful, and how is it that I have closed my heart to compassion? . . .

'I wonder why we are so frightened of losing the security of wealth and possessions and social convention and the customary mode of existence with friends. Friends can be most wonderful; they can help me and open me to the sufferings and injustices of the world, open me to mankind. But friends can also be the club of mediocrity in which we flatter ourselves, in which all we do is maintain one another in a closed society.

'In point of fact, our hearts are called to universal compassion. It is true that when you meet someone in misery, if you feel called to identify yourself with him, you begin to feel dispossessed. It is a frightening experience. . . .

'. . . But what we want, what the handicapped want, what the marginal want, are people who are committed. Too many keep, or want to keep, their feet in both worlds. But the shoe of the opulent society is slightly bigger and wider than the other shoe, and we remain more in the world of opulence than in the world of compassion and identification. So the world goes on, divided. . . .

'Compassion may be dying, and with compassion the person. It is like leaving the mental hospital where we saw eighty wonderful men, capable of relating and of easy laughter, and coming into our materialistic, fast-moving society. One wonders, where is sanity? And as one comes close to people and identifies with them, one tends to become a bit angry – maybe not angry, maybe sad. What can we do in a society that tends in so many ways to stimulate the thirst for abstract knowledge and books, but frequently, so frequently, closes its heart to people?

'This is one of the difficult missions of anyone who calls himself an educator, or who wishes in some way to be an educator although he knows that he is the first in need of being educated. He is called to give hope to the afflicted, to look at them with eyes that call them forth to hope. He stands between them and our frightened society, which clutches its securities of wealth and health and time and space and walls and rooms like little square boxes. The educator stands between these worlds and calls the afflicted to hope, calls those who are trapped in the boxes of security to open their doors, tells them not to fear. If you share your time and wealth and position and education, if you open the doors of your person without fear, then you will lose the deep fear that is at the depths of your being. You will open your gates to joy, to peace.

'Peace comes not by giving superfluous goods, but by sharing. Sharing what I have. Sharing my knowledge. Not teaching, sharing. Not giving, but sharing. I give, but I also receive. I receive your smile. I receive your words. I receive your expression, your being, into my being. Maybe your smile, the unexpressed words that flow through your face and hands, your eyes that light up, perhaps these will be the keys to unlock some of the doors that I have closed around myself. It is your childlike laughter that encourages me in some little way to share; it is your laughter that will pierce the depths of my being and break down some of the barriers that I have built around myself through fear. So it is that if I continue to share without fear, those gleaming eyes and smiles and hands will continue their surgical operation in me and gradually, peacefully, tenderly will destroy those barriers of egoism that are called acquisition and property, and make of me a new man capable of sharing and calling forth the afflicted, the handicapped, and the opulent, to open the doors of our hearts toward compassion. Thus, together, we can build a world of peace, a garden and not a jungle.'

The text of the Fifth Anniversary Lectures will be published in the near future in a book edited by Bruce Rusk of the Office of Field Development, OISE, who was responsible for arranging the series.

FOCUS ON THE CHILD

The Early School Environment Study

Lee Palmer/OISE

What is a significant question or activity that will arouse a child's interest?

This is typical of the issues examined by teachers when exposed to the Early School Environment Study, a child-centered approach to teaching and learning.

Paul Park, professor of elementary education at Althouse College of Education, in London, Ontario, patterned his study after the Nuffield Junior Science Program in England – a program based on play activity, in which the child poses problems of his own and seeks solutions on his own. Under the auspices of the Ontario Institute for Studies in Education, Mr. Park, a former elementary school teacher, studied the Nuffield system for a year. During that time he visited classroom after classroom, observing children totally absorbed and learning through the solution of practical problems that had significance for them.

Back in Ontario he worked for two years with ten project teachers in southwestern Ontario on a science study designed to implement the recommendations of the Ontario Department of Education's Science Curriculum for Elementary Schools, P1, J1. They were trying to provide through science an opportunity for the child to explore the real world around him – the world of technology as well as the world of nature.

In the spring of 1970 the Ford Foundation offered support for an expanded project going beyond science to the development of an integrated curriculum using support materials available locally. In most cases the materials could be brought to school by the children; in others, the children would go out into the community for resource materials.

The term 'environment' as used by Park in the Early School Environment Study is a broad one. It encompasses the whole physical, social, and human environment that affects the lives of children. The class uses everything from the local gravel pit to city streets as a source of learning.

Park's program tries to steer clear of feeding information to children and having them feed it back. It seeks, rather, to encourage them to use their minds and imaginations in solving problems of interest to them, basing learning activity on the real world of the child, his daily before-and-after school environment. This world is a joy to the child and hence offers the best potential learning experience available. By bringing the outside world into the classroom, by examining and experimenting with old tires, coils of wire, samples of soil, discarded clocks, and so forth, the child is doing what he naturally loves to do, and furthermore, he is learning from it. It is this type of activity that has significance for the child and arouses his natural curiosity.

Many teachers start the program with two half-days a week. One of the ten project teachers commented that at first she scheduled ESES for Friday afternoons so that if it turned out to be a complete disaster, not much time would be wasted. She was surprised to find that ESES activities soon took over the whole afternoon, Monday through Friday, encompassing far more subjects than she had thought possible. Her pupils were happy and productive, while she found a sense of fulfillment in bringing the children into closer contact with their own very real and immediate world.

In the Early School Environment Study it is recognized that basic skill subjects, such as reading, numbers, and writing, must still be taught. *How* they should be taught is left up to the individual teacher. Many teachers, especially in the junior grades, prefer a traditional approach; others have found ways to effectively incorporate skill subjects into ESES periods. Here's how one teacher set up her ESES program.

Sandra Rae, a grade 5 teacher at South Perth Centennial School, used the Black Creek Conservation Area as a starting point. The children were curious about the lives of the early residents of southwestern Ontario.

The role of the teacher: The teacher encourages, suggests, and advises her pupils as they investigate topics in line with their own interests. At the same time, she must ensure that a high standard of achievement is maintained in the traditional skill subjects, which might otherwise be neglected in the pupils' initial enthusiasm over this open-ended and child-centered approach to learning.

Starting with two half-days a week, the children worked on a pioneer theme. Sandra soon found that class interest extended into her reading and language program. Stories and poems were written. The children were allowed to select a book from the library on the pioneers for classroom reading. Sandra found her slow readers progressed much faster than expected, while her good readers enjoyed the freedom of reading at their own rate, not held back by the rest of the class as in the past.

At the end of the two-month project, the children knew they must do a report. Some chose to prepare board displays involving artwork, printing, and mapping skills, while others designed flow charts on making candles, wool, soap, etc., or gave talks to the class.

During the initial two years of testing, the ten project teachers attempted to develop a series of 'starting-point' problems designed to stimulate the natural curiosity of the children through using their interests, surroundings, and, above all, practical experience. They found that places as diverse as quiet country lanes, bustling city streets, and abandoned cemeteries were equally valid as starting points.

As the program requires only the simplest of materials, many of which can be brought from home, ESES can be implemented in almost any school without extra cost to the school board. For these reasons ESES has been able to include both rural and inner-city schools.

The Ford Foundation grant enabled the ESES team to carry out a three-year follow-up program, directed by Paul Park. The program is coordinated by Doug Yarranton, a former elementary school principal on loan from the Middlesex County Board of Education, with Mary Van Spronsen, a project teacher on loan from the Elgin County Separate School Board, acting as teacher consultant. Through intensive workshops for both teachers and principals, it is hoped that each school will eventually become its own resource center. A fast-developing core of master teachers with first-hand experience will provide leadership as the program is expanded and developed in individual schools.

Central to the entire program is the participation of Althouse College. Student teachers from the college acquire training in ESES during practice-teaching sessions in project schools. Project teachers outline their classroom programs to prospective teachers during visits to the college. 'All too often, colleges of education have been kept beyond or at best at the fringe of this kind of development program,' says Park.

The Ford Foundation has also recently awarded Park's study a second supplemental grant for the production of educational materials. These materials will assist the ESES team in training teachers and principals in these new teaching methods. Films, filmstrips, videotapes, and resource booklets are now being prepared as support material to follow up workshops.

This summer the ESES team will travel across Canada and the United States, holding workshop sessions for teachers interested in this approach. As many teachers have requested more detailed information on ESES so that they can make a start, a nominally priced booklet entitled 'The World of the Child' has been prepared. It is available by writing Publication Sales, OISE, 252 Bloor Street West, Toronto 5. The booklet is a practical guide to implementing ESES, with sample timetables, flow charts, equipment lists, report cards, and starting points, and is suitable for either the beginning or the seasoned teacher.

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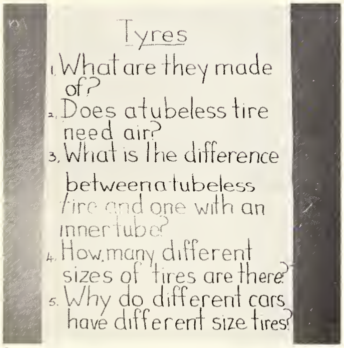
Tyres

1. What are they made of?
2. Does a tubeless tire need air?
3. What is the difference between a tubeless tire and one with an innertube?
4. How many different sizes of tires are there?
5. Why do different cars have different size tires?

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1. *Workshops for teachers:* To communicate the ideas and methods of the Early School Environment Study, workshops are held by the ESES team to bring new participants into personal contact with experienced project teachers. There new teachers can experience some of the delights and freedoms of this innovative approach to learning.

2.*Workcards:* This workcard poses five questions that the pupil can answer by investigating either on his own or in a group. Workcards are used by many teachers to familiarize their pupils with the methods and spirit of ESES. They can often help slow starters find purpose and direction. If the questions on the cards are left open-ended, the child is free to pursue any others that arise during the course of his investigation.

3. *Outdoor activities:* Paul Park, the director of ESES, shows a group of Toronto teachers how a building site with its bits of wiring, insulation, nails, tubing, etc., can prompt questions that lead to starting points in the classroom. He maintains that teachers must first get involved if their pupils are to get involved.

4. *Advance planning:* If outdoor activities are to promote the desired learning experience, teachers must prepare in advance. Here the teacher roped off an area for study, as the bush tended to be dense in other places. The ten project teachers who worked with Paul Park felt that one trip to an area was not sufficient. A second and even a third trip to the area were necessary to give them the data and in-depth knowledge needed for a prolonged study.

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5. *The role of the principal:* The Early School Environment Study depends to a large extent on the enthusiasm and support of the principal. He is the central figure, and as such he receives detailed and supportive information along with his staff from the very first. Over the next three years, ESES will involve principals in practical workshops to prepare them to conduct inservice programs in their own schools. This is seen as vital to the success of ESES, for a beginning teacher may founder if unexpected problems can't be discussed and solved as they arise throughout the year.

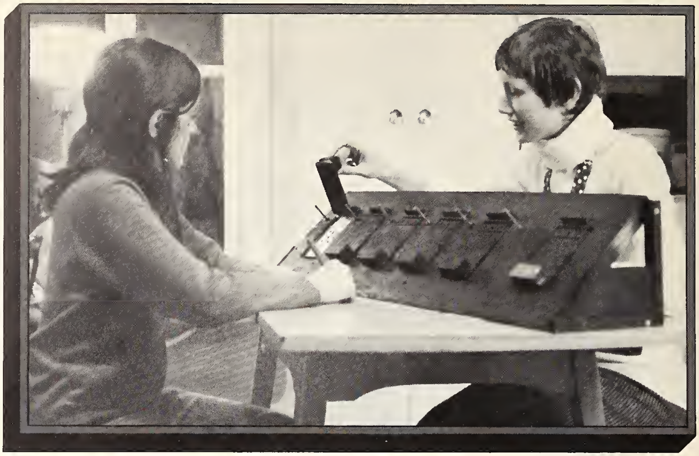
6. *Recording data:* Recording data as clearly and imaginatively as possible is an important part of ESES. Writing, language development, and artwork are utilized in this stage of the project.

7. *Collecting data:* It is important to give pupils some preliminary practice with working in groups and recording data. A simple assignment, such as measuring a recent snowfall, gives children the chance to investigate a problem at first hand and to formulate answers on their own. It also gives the teacher time to gain confidence and experience before launching a full innovative program with her class.

8. *Simple equipment:* It is fairly simple to construct a home for frogs, snakes, toads, etc., that your pupils collect during a visit to the stream. Large cardboard cartons from the supermarket, cut down to size, can be used for the purpose. The children can then study the animals' sleep, play, and feeding habits over a period of time. Unlike many innovative programs, ESES keeps costs to a minimum.

Information Processing and Social Class: An Experimental Investigation

Robbie Case/
Department of Applied Psychology/
OISE



Capacity measure — the doors are opened from left to right at 1½-second intervals by the experimenter.

A recent suggestion made by Professor Arthur Jensen of the University of California at Berkeley has stirred up a good deal of controversy in the press. The suggestion is that lower-class children are genetically deficient in 'conceptual' learning abilities, but that they are not deficient in 'rote' learning abilities. Jensen proceeds from this to argue that lower-class children should be taught by rote methods, perhaps with different educational goals in mind.

The general objective of the study described in this article was to consider social class differences within a different conceptual framework, one which would suggest more optimistic educational goals than those Jensen has proposed.

Instead of using the terms 'rote ability' and 'conceptual ability' – which suggest innate and unmodifiable human characteristics – the terms 'information-processing capacity' and 'information-processing strategy' were employed. This small shift in terminology suggested a rather drastic shift both in the conceptualization of social class differences and in educational emphasis.

Information-Processing Capacity

For the purpose of this study, information-processing capacity was defined as the ability to hold in mind, and to integrate, a number of different pieces of information (or acts).

To illustrate this, consider the example of learning how to swim. When we first attempt to do the crawl, we face a tricky problem. We may know how to kick our legs; we may know how to move our arms in a circular fashion; we may know how to twist our necks. But the first time we actually try the stroke, we must somehow put all these actions together. This requires more than physical skill. It requires the ability to concentrate on several things at once and integrate them; that is, it requires some information-processing capacity.

Consider a second example from a different area. Giving an impromptu speech presents a problem. We may know a number of facts (items of information). However, to speak effectively we must somehow put them together into an organized whole. This requires more than the ability to express a single thought. It requires some intellectual capacity: the ability to hold in mind and integrate several different items of information.

Within the framework of the model used in the study, this quantitative capacity was interpreted as being *(a)* genetically determined, and *(b)* basic to higher intellectual functioning. It was assumed that the child's intellectual potential is a direct function of his information-processing capacity.

Intellectual potential and intellectual performance, however, are very different things. It was assumed that in order to actualize his potential, the child requires an efficient set of intellectual strategies. Without them, he becomes rather like a high-powered computer with poorly written programs.

Information-Processing Strategies

For the purpose of this study, information-processing strategies were defined as mental plans, or procedures, for approaching problems.

The meaning of this concept can also be illustrated with a simple example. The person who has become skilled at writing essays does not try to hold everything he wants to say in his mind at once. This would overtax his information-processing capacity. What he does is to outline his main points on paper, then develop each one carefully within a separate paragraph. We may say that he uses an efficient information-processing strategy in writing essays.

Within the framework of the model used in the study, information-processing strategies were seen as being acquired only through interaction with the environment. Whereas it was assumed that a child's capacity continues to grow as he ages – given only the barest essentials of human life – it was assumed that his strategies do *not* increase in effectiveness very rapidly as he ages – *unless* he grows up in a stimulating environment.

General Experimental Hypotheses

Assuming that lower-class children generally encounter a less stimulating environment than upper-class children (an assumption which Jensen would be the first to agree to), and that their genetic potential is not significantly lower (which Jensen would not agree to), we were led to make three very simple experimental hypotheses:

1. Lower-class children would show no significant deficit in information-processing capacity at any age.
2. At the age when most children's information-processing strategies begin to increase very rapidly in effectiveness, lower-class children would begin to drop behind.
3. By direct instruction in the use of a strategy, the performance of lower-class children on any particular problem could

be raised to equal that of upper-class children.

Tests Used for Assessment

Information-Processing Capacity Measure
Children were seated facing a box with a row of doors on it. All but the last of these doors were lifted and closed, one at a time, to reveal an ascending series of digits; for example, 2, 7, 13. Then the last door was lifted to reveal a number (e.g., 9) and closed. The children were asked to indicate in what position, relative to the initial series of doors, the number under this last door belonged. If they answered correctly four times out of five when a total of three numbers was presented, but not when a total of four was presented, then their capacity was said to be 3. If they answered correctly four times out of five when a total of four numbers was presented, but not when a total of five was presented, their capacity was said to be 4, and so on.

Information-Processing Strategy Measure
Children were seated facing the same box. This time, however, the number of digits to be presented was set two higher than their capacity, and they were allowed to control the apparatus themselves. This meant they could look at the numbers in any order they liked (to look first at the one to be placed would be most efficient); they could also look at the numbers as fast as they wanted, and for the length of time that they wanted. Children who either (a) looked first at the number to be placed, or (*b*) got four tries right out of five by some special method of their own, were said to have used an efficient information-processing strategy.

Test Validation

Before it could be assumed that children's performance on the tests really *did* indicate what it was supposed to, it had to be shown that the developmental norms on the test were the same as those others had already obtained using more elaborate measures.

Juan Pascual-Leone, a professor at York University, was the first to suggest a method for assessing the development of children's information-processing *capacity*. When our capacity measure was administered to children in grades 1, 3, and 5, it was found that the norms obtained were identical to those he had predicted and found using his test: children between five and six years old demonstrated an information-processing capacity of 2, children between seven and eight demonstrated a capacity of 3, and children between nine and ten demonstrated a capacity of 4.

Strategy measure – the child is free to open the doors in any order and at any speed.

Jerome Bruner and his associates at Harvard University were among the first to investigate the development of information-processing strategies. They found that the first big development comes at about the age of seven or eight. When our strategy measure was administered to the children mentioned above, it was found that although children aged five to six did no better than chance, children aged seven to ten showed evidence of using efficient information-processing strategies.
Both the capacity and the strategy measures, then, appeared to be measuring what they were supposed to.

Predictions and Results

On the basis of the general experimental hypotheses mentioned above, three predictions were made.
1. It was predicted that there would be no difference between social class groups in information-processing capacity in grades 1, 3, and 5.
2. It was predicted that upper-class children would use more efficient information-processing strategies than lower-class children, at least in grades 3 and 5.
3. It was predicted that social class differences in strategies would be eliminated after both groups had been instructed in the use of the optimal strategy. This prediction was made only for children who had the capacity required to use the strategy being taught (this meant only the children in grades 3 and 5).

All three predictions were borne out.

Implications for Education

The following two implications for education appear warranted on the basis of the experiment conducted.
1. Disadvantaged children should not be conceived of as being deficient in basic *capacity* for handling information or solving problems, nor in ability to learn how to do this.
2. Disadvantaged children should receive special training in efficient strategies for approaching problems — *over and above* any remedial training they may presently receive in basic skills (e.g., arithmetic) or in basic subject matter (e.g., geography).

For example, if an assignment involving independent work is given to lower-class children, particular attention should be paid to where to go for information, where to look once the sources are located, how to budget time, how to weed out irrelevant facts, how to remember the important facts, how to put them together, and so on.

To use another example, if mathematics problems are presented after mathematics concepts, disadvantaged children should receive additional training in how to go about solving maths problems once the basic concept is understood: what things to write down, how to 'picture' the problem, how to decide what is relevant, how to change an unfamiliar problem into a familiar one, and so on.

It should perhaps be emphasized that the study which was conducted did not actually *disprove* either Jensen's hypothesis or his data. It was not intended to. What it did do was to reinterpret his data, and cast doubt on what he has proposed as educational implications. Even if there is a genetic component that affects the normal acquisition of intellectual strategies, the important thing for educators to note is that—at least in some instances—strategies can be taught. Instead of substituting 'rote' methods of learning for methods that require the learner to utilize intellectual strategies (as Jensen suggests), we might well concentrate on isolating and teaching strategies in addition to, or even instead of, whatever content we attempt to teach now.

Sesame Street: Education or Entertainment?

K. G. O'Bryan
Department of Applied Psychology/OISE

'Sesame Street' has been roundly acclaimed by professional critics and viewers as the finest children's television series yet produced. Indeed, a leading U.S. magazine listed the program as one of the two major happenings of 1969. The other was Neil Armstrong's landing on the moon! By contrast, the response of many educators has been far from enthusiastic. They accept the program's entertainment value, but they question its educational validity.

The original intent behind Sesame Street was to provide a direct educational experience for three- to five-year-old disadvantaged children using the medium of television. The program was specifically designed to incorporate psychological, educational, and sociological theory and practice in a format that would permit the delivery of a specified educational package with punch and considerable precision. But just how successful has it been in achieving these goals?

In an address recently given at the Ontario Institute for Studies in Education, Dr. E. L. Palmer, Director of Research for the Children's Television Workshop (the organization that produces Sesame Street), outlined the research results obtained thus far and stressed the educational gains made by the target population in the goals set. Especially important were the achievements of black children in ghetto areas. Also of considerable interest were findings that many three-year-old watchers outperformed older non-watchers in the control groups, while mother-assisted viewers performed best over all on the various tests.

Assuming that an adequate research design was employed and that the measures used were appropriate, there can be little doubt that the program has produced some substantial gains in performance by its audience on tasks representing the program's instructional goals. If this is the case, why do some teachers, psychologists, and parents argue that Sesame Street is not necessarily a useful aid to education but is merely an excellent series of entertaining programs?

It is probably beyond the scope of this article to suggest a complete answer to this, since there are likely to be as many questions as there are educational theories, psychological positions, and parental expectations. Nonetheless, some attempt will be made. Let us first examine Sesame Street's instructional goals and some of the techniques it uses to achieve them. We may then be able to understand some of the misgivings.

Basically, Sesame Street has three areas in which it makes an active attempt to teach. These are symbolic representation, problem-solving and reasoning, and familiarity with physical and social environments.

Symbolic representation calls for the child to recognize basic symbol forms such as letters, numbers, and geometric forms and use them to perform simple operations. This implies that the child will be able to perform such tasks as recognizing differences in the use of numbers and letters, selecting appropriate letters or numbers from others under a variety of conditions, providing verbal labels for letters, numbers, and forms, and matching geometric forms (usually squares, circles, and triangles). In addition, it implies the child will be able to perform such secondary tasks as reciting the alphabet and counting in sequence.

Under the general heading of problem-solving and reasoning, Sesame Street's instructional goals are that the child learns to deal with objects and events in terms of classifications, relationships, and temporal and spatial ordering. He is expected to develop some reasoning ability and acquire some skills in inquiry and problem-solving.

These goals are initially approached by encouraging perceptual discrimination (through the identification and labeling of body parts), visual discrimination (through matching and modeling), and auditory discrimination (through matching words on the basis of rhyming sounds and the perception of rhythms). In addition, the children are expected to learn to make classifications through grouping like and unlike objects and gain skills in ordering, using as criteria size and time of presentation.

Problem-solving and reasoning are tackled on three fronts: inferences and causality, the generation of solutions and attitudes towards inquiry, and problem-solving. These three areas have puzzled psychologists and educators for a very long time, and it is a safe assumption that they represent the most difficult to define, teach, and measure of all of Sesame Street's goals.

Inferences and causality call upon the child to infer possible antecedents and consequences and to order causal sequences. If, for example, the child is shown Humpty Dumpty leaning over a high wall, he could infer that he had climbed the wall or been placed on it for a variety of antecedent reasons and that if he leans too far, there will be certain consequences. Should the scene show a broken Humpty at the bottom of the wall and a picture of him falling, the child ought to be able to recognize the causal relationship between the fall and the broken shell.

Two main approaches to the generation of solutions are used in Sesame Street. In one, the child is called upon to suggest multiple solutions to simple problems; in the other he is asked to select the most relevant or complete solution from a set of possible solutions. On the whole, this is a rather simplistic and narrow view of problem-solving, even though the stated aims of the program include attempts to encourage 'useful' attitudes such as persistence, inquiry, and reflection in problem-solving situations.

Of less difficulty for Sesame Street is its attempt to teach children about the natural environment, natural processes, and man in his world. Through presenting various aspects of life and living, Sesame Street asks the child to learn about the function of nature and machines, society and self, and the cooperative aspects of modern life. Some attempts are made to recognize the partly abstract concepts of justice and fair play and the differences in points of view that exist among individuals and groups of individuals.

Sesame Street's long list of aims and objectives provided the basis for testing the program's effectiveness, but that effectiveness was essentially dependent upon the skill and techniques of the production unit in communicating the educational content in the entertainment packet.

Prior to its first showing, Sesame Street had a year and a half of research and development. Unlike most of its competitors, its primary purpose was educational, and it was not dependent upon a commercial sponsor. It had ample funds (more than eight million dollars provided by at least eight different national agencies and foundations) and was thus able to have considerable freedom in the selection of personnel, materials, consultation, and programming.

It had, in effect, everything in its favor in presenting its educational content, and the techniques it used reflect the ability of the high-powered consultation groups employed. It is for these apparently highly successful techniques that Sesame Street has received its greatest praise and strongest criticism.

Sesame Street relies heavily on humor and incongruity, which are perhaps the most pervasive techniques in the program. In view of the non-captive nature of the audience, the humor element is useful in laying the groundwork, in that it entertains and holds the attention of not only the younger children but also older siblings and parents, who are potential channel-changers. Its value as a vehicle for instruction is less easily established. The producers argue that it serves several psycho-educational purposes: it provides motivation, so that the association of Wanda the Witch with the letter W makes learning more fun (providing, of course, that the learned material is the letter, not the joke); further, it induces attention, especially through the use of incongruity. Since the highly repetitive content of the program could easily result in boredom, the presence of unexpected and humorous twists in the repeated sequences is thought to provoke curiosity, attention, and expectation. Yet another function of the humor technique is the affective quality it may possess for disadvantaged children, especially in language learning. Language learning is presented as a pleasurable and personal social art, and much of the burden of this task is carried by humor in the persons of the Cookie Monster, Kermit the Frog, and Ernie.
An integral part of Sesame Street's technique is the encouragement of the participation and anticipation of the viewer. This may be something of a surprise for critics who have complained of the 'passivity' of the program. The participation technique appears to rely on the child identifying with a particular performer in his attempts to label, classify, find relationships, and solve problems. There is some research evidence that children sing and talk along with favorite performers, attempt to assist them in their tasks, and compete with one another in solving problems presented to them.

A sense of participation and anticipation may also be generated by another extensively used technique, exact repetition and repetition with variations. In this technique Sesame Street has borrowed heavily from commercial advertising and has received some criticism for doing so from educators and producers of television commercials. Speech is used economically; jingles, rhymes, rhythms, and alliteration abound, and almost every trick and special effect presently used in commercial production can be found in Sesame Street. Inherent in the successful high-cost commercial is the use of repetition and its ability to intrude itself into the life of the viewer. It seeks to attract the viewer's attention on cue with its particular jingle, slogan, or pitch, and hold the interest of the viewer, sometimes in spite of himself, by its message. Sesame Street's producers work on a similar theory — that exact repetition causes the child viewer to rehearse the message, both during and after its presentation, to the extent that he remembers it. They further assume that the child differentially experiences repeated presentations of the same segment, extracting or responding to different parts at different degrees of intensity; thus his ability to conceptually integrate sets of relationships can be enhanced.

Repetition with variations is used in Sesame Street in two forms. In one, the content remains constant and the format is varied; in the other, the content is varied while the format remains unchanged. Several other techniques of instruction used on the program utilize child and adult models, celebrities, and really delightful puppetry and cartoon characters, which provide vehicles for an educational segment largely through the entertainment and identification value of the personality or puppet concerned.

So then, where does the criticism of the program come from? What is the nature of the criticism, and how justifiable is it? Opponents of Sesame Street's educational attempts have generally been psychologists and teachers, and their criticism has arisen from their own differing approaches to psychology and education.

One criticism is that the techniques stress mechanical memory training and rote learning and ignore the more generalizable concept development that unstructured, free-wheeling, and open-ended activities are presumed to furnish.

This criticism seems rather ill founded, since it ignores the progressive nature of the program, the repetition with variation approach, and the extensive associational enlargement that occurs in letter recognition, number attainment, word building, and so forth. While the initial presentation of material may utilize rote learning, subsequent presentation of it is usually varied in context, content, and intensity.

A more cogent criticism deals with the rapid fire, fragmented patterning of the material, especially in the segments dealing with numbers. There may be some truth in the claim that Sesame Street is not conducive to the development of attention in children, since it constantly avoids segments requiring lengthy concentration. It *is* aggressive, and it *does* present very noisy sequences and make use of pleasure, surprise, anxiety, and humor in rapid succession. Whether this is actively detrimental to the development of a child's attention span is questionable; indeed the concept of attention itself is very much of an open question in psychology. What Sesame Street has managed to do, however rightly or wrongly, is to capture the child's interest and cause him to attend to the program, at least to the extent of keeping him from switching channels. In a sense, the program operates on the principle that while only a limited degree of attention on the part of the viewer can be expected, it can be captured by offering a continually changing pattern of segments.

Concern has also been expressed over the question of the affective or emotional qualities in Sesame Street presentations. Essentially, this criticism centers on the adult and child actors, who are accused of woodenness and of treating feelings and emotions too dispassionately. This is a difficult point to respond to, since the perception of others' feelings is a notoriously difficult task. Its difficulty is compounded when an adult tries to assess a child's reaction to adult, child, and cartoon characters' reactions to emotions.

Other criticisms concern the lack of activity demanded of the viewer, the possible stifling of the creativity that might occur if the child were not so tightly structured by the program, and the poor parent-child relationships engendered by parents demanding that their children learn from Sesame Street.

Most of the reaction for or against seems to arise out of a basic difference in psycho-educational theories of early childhood education. One school of thought argues for an intensive early childhood program of reading, number experience, and so forth, on the Sesame Street model. The other emphasizes freedom and structureless experience approaches fitted to the child's age level, emotional needs, and interests. Criticism of Sesame Street tends to come from members of this school. In conclusion, it is perhaps well to recall that Sesame Street was not specifically designed to reach the child already enjoying and being successful in the second of these two modes.

La langue d'enseignement dans nos écoles secondaires français

André Lécuyer, Secrétaire-exécutif adjoint
OSSTF

Qu'est-ce qui se fait en Ontario relativement à l'utilisation du français dans l'enseignement au niveau des écoles secondaires de langue française? Où trouve-t-on les manuels appropriés, les aides didactiques? Que fait mon association professionnelle pour me venir en aide? Et, finalement, quel appui peut me venir du ministère de l'Education?

Les points saillants d'une mini-enquête
Une brève recherche auprès des surintendants en chef, de leurs adjoints et des directeurs d'écoles m'amène aux conclusions suivantes.
1. La langue française devient rapidement la langue d'enseignement dans les écoles ou classes de langue française pour toutes les matières y compris les sciences, les mathématiques ainsi que les cours de technique et de commerce, même quand les manuels scolaires sont rédigés en anglais.

2. a) Dans certains endroits de la province, on a introduit la langue française comme langue d'enseignement aux niveaux de la 9e et de la 10e années seulement, soit parce que les élèves en 11e, 12e et 13e années avaient commencé leurs études secondaires en anglais, soit faute d'enseignants francophones qualifiés.
b) Dans d'autres endroits, la direction, secondée par les parents, a fait du français la langue d'enseignement de la 9e à la 13e année dans toutes les matières du programme. La plupart des manuels sont cependant rédigés en anglais.

3. Dans certaines écoles, on utilise le français et l'anglais en alternance comme langue d'enseignement pour différentes raisons comme la difficulté d'adaptation des élèves, la pénurie d'enseignants francophones qualifiés, l'isolement des petits centres non pourvus de conseillers pédagogiques francophones.

Toutefois, bon nombre d'éducateurs ont affirmé que la langue française devait devenir la langue d'enseignement dans toutes les matières du programme parce qu'elle facilite la compréhension, favorise l'intérêt et la participation dans la salle de classe, et contribue par conséquent à un plus grand succès global.

Selon ces mêmes éducateurs, la pensée de l'élève devient plus précise et sa langue plus châtiée quand la langue maternelle devient quotidiennement l'instrument de travail et de communication.

Effort des enseignants et de leurs associations
Depuis au moins deux ans les enseignants, seuls ou en groupes, de même que leurs fédérations et leurs conseils scolaires, doivent faire de grands efforts pour parer à la carence de directives, de manuels, et d'aides didactiques en langue française. Par exemple, le conseil scolaire d'Ottawa vient de mettre sur pied des comités de travail et de recyclage dans le but de faire l'inventaire de la pratique courante et de proposer des plans d'avenir. Ces comités rédigeront, si nécessaire, les programmes d'études et les guides pédagogiques appropriés.

Monsieur Roger Leblanc, membre de l'OSSTF et conseiller pédagogique au service du conseil scolaire de Sudbury, a dressé une liste exhaustive de manuels français pour les mathématiques, les sciences, et les matières commerciales et techniques. De plus, il a préparé un lexique des termes français-anglais pour les mathématiques. Le Comité de langue française de l'OSSTF, en plus de lui apporter une aide financière lui permettant d'approfondir ses recherches, se charge de la distribution de ces listes à toutes les écoles secondaires françaises de la province.

L'OSSTF vient de créer des comités d'études en vue de la préparation de guides pédagogiques français pour l'enseignement de la culture physique et des matières commerciales et techniques.

De son côté, l'AEFO (l'Association des enseignants franco-ontariens) se penche sur des problèmes similaires. Tout dernièrement la section 'curriculum' du ministère de l'Education a entrepris une compilation plus complète de textes français et d'aides didactiques mais la date de parution n'a pas encore été fixée.

Responsabilité du ministère de l'éducation
Pourtant ces efforts louables ne risquent-ils pas, parce que trop dispersés, d'entraîner un dédoublement d'énergie qui ne garantit pas pour autant la publication d'études vraiment à point. Il en résulte que les associations d'enseignants doivent ralentir leurs activités dans le domaine du perfectionnement professionnel et que les enseignants se voient dans l'obligation d'inventer intégralement, dans leurs moments de loisir, des programmes et des manuels adaptés à leurs besoins.

Une solution très simple et beaucoup plus efficace s'impose. Que le ministère s'efforce de mettre en priorité la composition de manuels et de guides pédagogiques français pour les professeurs de mathématiques, de sciences, et de matières commerciales et techniques. Qu'il publie le plus tôt possible une liste des meilleurs manuels scolaires pour élèves francophones ainsi que les ouvrages de références dans les domaines en question. La nouvelle politique du ministère d'inclure seulement des livres canadiens dans cette circulaire n'est pas sans valeur mais elle est inappropriée dans le cas des écoles de langue française, vu la pénurie de manuels canadiens rédigés en français.

De plus, nous suggérons fortement que le ministère de l'Education, conjointement avec les deux associations d'enseignants qui ont des membres francophones – l'OSSTF et l'AEFO – en collaboration avec les conseils scolaires concernés, forme un comité provincial d'étude pour s'enquérir des besoins exacts des éducateurs et pour choisir judicieusement les moyens à prendre pour remédier au mal latent évoqué dans les lignes qui précèdent.

Nous soulignons également qu'il est urgent et primordial d'embaucher une équipe de conseillers pédagogiques de langue française, sous la jurisdiction d'un directeur francophone qui s'occuperaient uniquement des écoles de langue française de la province. Leurs tâches consisteraient à améliorer l'enseignement du français dans toutes les matières au programme, à donner des cours de recyclage, à tenir des séminaires en langue française sur les différentes matières du programme, à maintenir à jour les listes de manuels scolaires et d'aides didactiques et audio-visuelles, à former des équipes d'étude pour rédiger les manuels en langue française, et, enfin, à faire profiter les écoles des innovations et expériences pédagogiques qui se font en langue française.

C'est donc un appel à la collaboration, centrée sur une action immédiate, positive, et efficace, que nous lançons aux organismes éducatifs.

Ces quelques éléments de solution au problème du français comme langue d'enseignement, en plus d'éliminer le dédoublement de travail actuel, accorderaient aux enseignants francophones des instruments adéquats et un service pédagogique constant, conditions essentielles de leur succès. En plus d'être pratique, cette suggestion offre à tous les groupes travaillant dans une même sphère l'occasion de conjuguer leurs efforts pour réaliser de façon concrète et efficace les objectifs qu'ils se sont fixés individuellement.

The Ontario Department of Trade and Development

Teaching Aids from the Community

Readers are reminded that because of the high cost involved in the preparation of materials reviewed, requests should be made only when appropriate use is assured.

PUBLICATIONS

While some of the publications reviewed may have limited direct application to regular courses of study, all of them contain valuable information about Ontario and will be useful in a variety of situations.

Publications are available without charge. Requests should be addressed to:
Information Services
Department of Trade and Development
950 Yonge Street
Toronto 5, Ontario
Telephone: (416) 365-5466

Municipal Industrial Development Guide
A 142-page catalog of information that identifies and discusses the ingredients of an effective program of industrial development. Since this is a professional reference book, it will not have a wide classroom application. If a need for comprehensive specialized information does exist, however, it will be invaluable.

Ontario Exports by Commodities and *Ontario Exports by Countries*
Two statistical summaries of Ontario's export achievements that point to new marketing opportunities.

Statistics for Profit
Statistics on Ontario and Canadian exports to the U.S., the U.K., West Germany, and Japan, and Canadian export opportunities.

Ontario Reading Guide
A list of books and publications that deal with Ontario's history, geography, natural resources, industries, and economy.

Ontario – Workshop of Canada
A 35-page illustrated booklet that presents a review of the provincial economy against the background of Ontario's history, geography, population, and natural resources. Statistical information on population distribution, growth, and ethnic background, primary and secondary industries, and export trade is included.

Ontario – Facts and Figures
A colorful illustrated brochure that synopsizes the content of *Ontario – Workshop of Canada.*

Sheridan Park Research Community
A review of the operation, organization, and function of Ontario's newest research community.

Women and the Economy
An outline by the Women's Advisory Committee of ways in which Ontario women can strengthen the economy.

Special Publication
For information only. The following book is *not* handled by the Department of Trade and Development.

Ontario
A 160-page full-color book that features prominent writers telling about Ontario. Produced by the Department of Trade and Development for sale at Expo '70, the book is available from booksellers across Canada ($2.25). (Published in English, French, German, and Japanese.)

FILMS

Department of Trade and Development films are loaned on the understanding that the borrower will pay the return postage or express charges. Please note the two groupings of films and address requests as indicated.

Information Service Films – 16 mm. (color)
Available from:
Information Services
Department of Trade and Development
950 Yonge Street
Toronto 5, Ontario
Telephone: (416) 365-5466

Going for You – 20 minutes
A presentation of the many services of the Department of Trade and Development that are available to businessmen.

Ontario Today – 28 minutes
The people of Ontario, their industry and recreation, highlight an extensive filmed tour of the province.

Big Deal – 8½ minutes
An entertaining analysis of the Ontario economy, emphasizing the importance of expanding domestic and export markets.

The Scientific Century – 20 minutes
A visit to Sheridan Park Research Community, providing insight into research and its importance to man's well being.

Special Projects Films – 16 or 35 mm. (color)
Available from:
Film Section
Special Projects and Planning Division
Department of Trade and Development
950 Yonge Street
Toronto 5, Ontario
Telephone: (416) 365-6201

They Came to Build – 17 minutes
Music and folk dancing from other countries and cultures and their contribution to the building of our province are shown against a background of the Ontario landscape.

7½ Million Economists – 18 minutes
A review of how Ontarians work to build a strong economy.

A Place to Stand – 18 minutes
The well-known Expo '67 film, which uses spectacular multi-image photography to depict Ontario and its people.

Our Living World
An Instructional Kit on Ecology

The vehicle for ecology instruction in *Our Living World,* a kit produced by the Upper Canada Zoological Society and the Ontario Zoological Park and sponsored by Canada Dry Ltd., is a behavioral study of animals. Each of the animals studied represents a large family group or species; for example, the Sumatran tiger represents the cat family. Man, representing the 'human' family, is the final animal presented. Man receives treatment identical to that accorded the other animals studied.

Professor C. R. Van Eysinga with his cheetah Duma, one of the animals featured in the ecology kit, 'Our Living World.'

The program demonstrates the cumulative effects of interference with the environment, for environmental change leads to altered patterns of animal behavior that in turn upset the balance of nature and threaten species with extinction. The kit deals with existing facts and offers no predictions for the future, but the facts show that uncontrolled environmental pollution holds the same threat to survival for man as for other species.

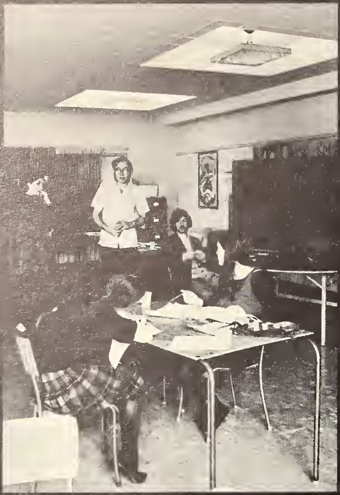
C. R. Van Eysinga, a professor of zoo-biology at the University of Waterloo and Director of the Upper Canada Zoological Society, developed the kit with assistance from John Collins, head of the science department at Thornhill Secondary School, members of the Ontario Zoological Park staff, and students from Waterloo.

The kit includes a 40-page text illustrated in color, related material, a teacher's guide, and a statement of the rationale underlying the program approach. It is free to teachers on request. (Because of the cost involved in preparing the kits, only one will be given to each teacher, but all interested members of any school staff may obtain one.)

Requests, giving the teacher's name, school, and school address, should be made before June 15 and should be addressed to:
Our Living World
Box 519
Willowdale, Ontario

Additional information about the kit may be obtained from:
Mr. R. Duquette or
Mr. E. Conroy
Concept Creative Communications
21 Grenville Street
Toronto 5, Ontario
Telephone: (416) 923-8965

(*Note:* The Upper Canada Zoological Society is a public, non-profit organization chartered by the Province of Ontario and charged with responsibility for maintaining the Ontario Zoological Park, established at Wasaga Beach in 1962 as a natural history park for educational and scientific purposes.)



Profile of a School/10

SEED

SEED stands for 'Shared Experience, Exploration, and Discovery' — a new alternative in secondary school education. The first SEED program was organized by the Toronto Board of Education as an answer to the problem of student unemployment in the summer of 1968. It functioned as an 'intellectual drop-in center' and was successful enough to warrant its being held again the following summer.

In the fall of 1969, a group of those participating decided to carry on with the program through the year as an alternative to and enrichment of the regular school system. Utilizing available community resources, the program 'blossomed,' and in the spring of 1970 participants convinced the Toronto Board of its viability as a full-time alternative to high school. During SEED's third summer, the present program was designed.

There are now one hundred students in SEED, ranging in age from thirteen to twenty-one. Students with previous SEED experience were given priority in being admitted to the full-time program; the others were chosen from the applicants by lot. The Toronto Board of Education has underwritten the program's administrative costs and provided four experienced high school teachers, who offer accredited courses in English, French, history, mathematics, and the sciences, and about five thousand square feet of rented space in a centrally located Y. This core structure provides for a degree of security as well as for a flexible curriculum that most of the students find more or less relevant.

The philosophy underlying SEED is that learning is a self-motivated process. Attendance is voluntary; however students are expected to file weekly summaries of their learning activities. Most of these activities take place within the community, utilizing available resources and voluntary instructors (known as catalysts). The standard procedure for establishing a new course of study is that some student or group of students shows an interest in a subject and simply finds someone in the community willing to share his time and knowledge. As the program became better known, more people visited, and many stayed on as catalysts or students.

In a given week, as many as fifty groups may meet at convenient locations (e.g., homes or places of work). One SEED student is attending a university graduate seminar and at the same time a professor is attending a speed-reading class given by a SEED student.

The school is administered by the students themselves. They are acutely aware of the fact that the program and its future is their responsibility. Rules are evolved to meet specific needs and are determined by those they affect. If the student wishes a diploma, he must arrange for accreditation of the courses he takes. However, this is merely one alternative open. Some students take no credit courses, while others make special arrangements with universities regarding admission.

As to the future — things look bright. Perhaps the only mandatory course at SEED is learning how to make use of available resources and how to make resources available. Judging from the overwhelming community support, this has been done responsibly, to the mutual benefit of all involved. A major advantage of SEED is that it is far less costly to operate than a standard secondary school program. This is one of the factors that has led at least three other boards of education in the province to plan similar programs, while the Toronto Board hopes to expand the present project. Indeed, SEED seems to be a very appropriate model for an approach to the deinstitutionalization of education.

The fact that SEED makes direct use of community resources also makes it directly accountable to the community. To learn more about SEED, you are welcome to visit and see for yourself the extent of the program. Please address all enquiries to Mr. M. Shukyn, Coordinator, Project SEED, 750 Spadina Ave., Toronto 179.